

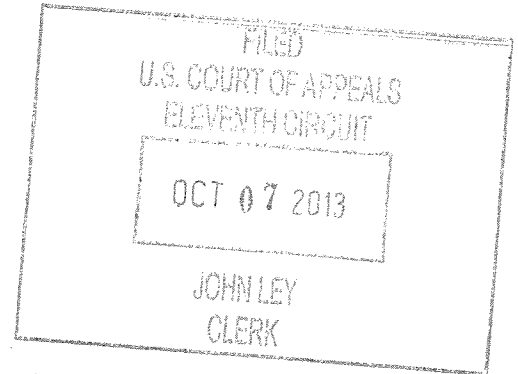
Case No. 12-15893-RR

**UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT**

JONATHAN CORBETT,
Petitioner

v.

TRANSPORTATION SECURITY ADMINISTRATION,
Respondent



Petition for Review of a Decision of the
Transportation Security Administration

BRIEF OF PETITIONER JONATHAN CORBETT

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CERTIFICATE OF INTERESTED PARTIES

Petitioner Jonathan Corbett certifies that the following is a complete list of the trial judges, attorneys, persons, associations of persons, firms, partnerships, or corporations known to him that have an interest in the outcome of this case as defined by 11th Circuit Local Rule 26.1-1:

Judges & Magistrates of Related Cases

- U.S. Chief Circuit Judge James L. Edmondson
- U.S. Circuit Judge Gerald B. Tjoflat
- U.S. Circuit Judge Peter T. Fay
- U.S. District Judge Marcia G. Cooke
- U.S. Magistrate (Ret.) Ted E. Bandstra

Petitioner

- Jonathan Corbett

Respondent

- U.S. Department of Homeland Security
 - Janet Napolitano
 - Transportation Security Administration
 - John Pistole

- U.S. Department of Justice
 - Andrea W. McCarthy
 - Anne R. Schultz
 - Carlotta P. Wells
 - Jesse Grauman
 - Joseph W. Mead
 - Laura G. Lothman
 - Mark B. Stern
 - Rupa Bhattacharyya
 - Sandra M. Schraibman
 - Sharon Swingle
 - Stuart F. Delrey
 - Wilfredo Ferrer
 - William Turnoff

Additionally, there is significant public interest in this petition, as two million travelers are subject to the practices of the Transportation Security Administration herein reviewed on a daily basis, as well as countless travelers at international airports across the world as a result of pressure placed on foreign countries to meet American standards in aviation security.

STATEMENT REGARDING ORAL ARGUMENT

Petitioner Jonathan Corbett respectfully requests oral arguments to provide the Court more clarity than can be, or has been, provided to it in writing, and requests that oral arguments be assigned to the Court's satellite office in Miami, Fla..

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STATEMENT OF JURISDICTION

Any person with “a substantial interest” in an order “with respect to [the TSA’s] security duties and powers” may “apply for review of the order by filing a petition for review in ... the court of appeals of the United States for the circuit in which the person resides...” 49 U.S.C. § 46110(a). The Circuit courts have “exclusive jurisdiction to affirm, amend, modify, or set aside any part of the order and may order the [TSA] to conduct further proceedings.” 49 U.S.C. § 46110(c); see also *Corbett v. United States*, 458 Fed. Appx. 866 (11th Cir. 2012), *cert. denied*; *Tooley v. Napolitano*, 556 F.3d 836, 840-41 (D.C. Cir. 2009).

Petitioner challenges the TSA’s decision to subject travelers to invasive searches at airport security checkpoints. After extensive litigation, this Court, and every court to hear similar arguments, has determined that the decision challenged by Petitioner constitutes an “order” under 49 U.S.C. § 46110. *Id.*; see also *Blitz v. Napolitano*, 700 F.3d 733 (4th Cir. 2012). Respondent has re-affirmed the same in this action. See Resp.’s Opp. to Pet.’s Mot. to Transfer (Dec. 13th, 2012).

Petitioner is a frequent flyer, having flown no less than 100,000 miles on over 100 domestic flights over the course of the past 3 years. Each day Petitioner flies from a domestic airport, he must traverse a screening checkpoint subject to the TSA’s order. On three occasions, Petitioner has been ejected from a TSA security checkpoint and

denied access to his flight as a result of his refusal to consent to the searches required by the order. Decl. of Jonathan Corbett, ¶ 1. Petitioner has conducted substantial research regarding issues surrounding the challenged order that has been presented to the United States Congress as well as placed on the record by the legislature of the State of Texas. *Id.*, ¶¶ 2, 3. It is clear that Petitioner has the “substantial interest” required by § 46110(a).

The Court has asked, and been briefed on, whether § 46110(a)’s 60 day time limit precludes this petition from being heard. See Jurisdictional Question (Dec. 5th, 2012); Petitioner’s Reply (Dec. 19th, 2012); Respondent’s Reply (Dec. 20th, 2012). The Court chose to carry this issue with the case. See Order Re: Jurisdictional Question (Feb. 22nd, 2013). Petitioner re-alleges the argument found in his reply to the jurisdictional question: that the secret nature of the order precluded Petitioner from being able to determine the proper forum or that the order even constituted an order; that the order is continually updated and re-issued by the TSA, and the 60 day period is reset each time that occurs; that Petitioner has continuously prosecuted his challenge to the order and has never allowed 60 days to lapse; and that Congress may not foreclose an ongoing constitutional injury.

Further, Respondent is estopped from arguing that the 60 day rule precludes Petitioner’s case at this point because, in their quest to have the courts rule that the

district courts have no jurisdiction over Petitioner's claim, they have argued that the 60 day period is tolled by the fact that this particular order is never served:

But § 46110 is not rendered inapplicable simply because an individual affected by the revised SOP does not receive notice of its requirements within the initial 60-day period following its issuance. *See Durso*, 2011 WL 2634183, at *4-*5; *Redfern*, 2011 WL 1750445, at *5-*6. The delay in notice merely means that the time limits in §46110(a) might not yet have begun to run. *See Avia Dynamics, Inc. v. FAA*, 641 F.3d 515, 518-519 (D.C. Cir. 2011).

Corbett v. United States, Appellee Brief, p. 29 (Oct. 24th, 2011). In that brief, the government cites *Avia Dynamics*, which indeed sets a low bar for "reasonable grounds," finding that the 60 day requirement is "nonjurisdictional" and that merely "more than simply ignorance of the order" is required to satisfy the reasonable grounds requirement. *Avia Dynamics, Inc. v. FAA*, 641 F.3d 515, 519 (D.C. Cir. 2011).

Respondent's use of weasel words like "might not" do not make the doctrine of estoppel inapplicable: it is clear that the district courts dismissed challenges to the order on the government's assertion that the challenge would be heard in this Court. And, in at least one instance, Respondent squarely replied to a judge that the 60 day rule would not stop a nearly identically situated litigant from continuing his claim in the Courts of Appeals. *See* Notice of Supplemental Authority (Dec. 27th, 2012), *citing Redfern v. Napolitano*, 10-CV-12048 (D. Mass.).

STATEMENT OF THE ISSUES

1. Whether the Transportation Security Administration (“TSA”)’s nude body scanner program is a reasonable search under the Fourth Amendment to the United States Constitution
2. Whether the TSA’s pat-down program, as modified in or around October 2010, is a reasonable search under the Fourth Amendment to the United States Constitution

STATEMENT OF THE CASE

I. Course of Proceedings in the Agency & Other Courts

In or around September 2010, the Transportation Security Administration (“TSA”) issued an order, effective in or around October 2010, to change the primary screening¹ methods used at airport security checkpoints across the country. Instead of the walk-through metal detectors previously used for primary screening, nude body scanners² and new, invasive pat-downs were to be implemented wherever available. This order was not – and has still not been – published for the general public’s inspection.

Petitioner Jonathan Corbett filed suit against the United States of America on November 16th, 2010 in the U.S. District Court for the Southern District of Florida, seeking a determination that the TSA’s nude body scanner and pat-down programs were unconstitutional. *Corbett v. United States*, 10-CV-24106 (S.D.F.L. 2010). The TSA successfully argued that these programs were implemented as a result of an “order” of the TSA and that Congress had stripped the district courts of jurisdiction of

¹ “Primary” screening refers to the first – and typically only, assuming the traveler “passes” – screening used on the general traveling public.

² A “nude body scanner” is a device that uses electromagnetic radiation to create an image of the traveler without his or her clothes. The TSA refers to these devices using many names, including but not limited to: Advanced Imaging Technology (AIT), Whole Body Imaging (WBI), backscatter x-rays, and millimeter wave scanners.

such orders. *Id.*; 49 U.S.C. § 46110. Accordingly, the merits of CORBETT's case were never heard, and his case was dismissed. *Id.* (Mar. 30th, 2011). CORBETT appealed the dismissal to this Court, which affirmed. *Corbett v. United States*, 458 Fed. App'x 866 (11th Cir. 2011). CORBETT filed a petition for *certiorari* in the U.S. Supreme Court, which was denied. *Corbett v. United States*, 133 S. Ct. 161 (2012). The jurisdictional issue settled, CORBETT filed the instant petition in this Court on November 16th, 2010.

II. Statement of the Facts

A. *Timeline of the TSA's Nude Body Scanner Program*

The technology behind the TSA's current nude body scanners was first commercially available no later than the 1990s. Admin. Rec., Vol. 2, p. 1913. Since the inception of these devices, studies have unanimously concluded that there would be significant issues with deploying them in the aviation security setting due to public outrage over the privacy implications. *Id.* Perhaps for that reason, no steps were taken to use these devices in an aviation security setting in America until 2007, when the TSA requested proposals from vendors to supply them with these scanners. Admin. Rec., Vol 1C, Doc. 75, p. 1377.

Two types of scanners were selected by the TSA for use at airport security checkpoints: the Rapiscan Secure 1000 backscatter x-ray and the L-3 ProVision Dual

Pose millimeter wave scanner. Both machines work by transmitting electromagnetic radiation in the direction of the subject and measuring the radiation that is reflected back into the machine by the traveler and any items on his or her body. These measurements are converted into a graphic image of the traveler's body underneath his or her clothing, with sufficient detail to clearly see genitalia, nipples, scars, and body abnormalities.

Within 6 months of requesting proposals, the TSA obtained, "tested," and implemented several of the selected scanner models in airports across the country. *Id.*; Admin. Rec., Vol 1C, Doc. 84, p. 1474. However, independent GAO audits found testing to be lacking, as may be expected by the extraordinarily brief timeframe between proposal request and deployment. Admin. Rec., Vol 1B, Doc. 72, p. 1353 (testing not completed until 2009). GAO audits also found that the TSA failed to conduct a meaningful cost-benefit analysis, a finding which the TSA had failed to correct by their next audit (or at any point as can be found in the administrative record). Admin. Rec., Vol 1B, Doc. 39, p. 732; Admin. Rec., Vol 1B, Doc. 72, p. 1353.

Notwithstanding, the TSA piloted these scanners for about three years in a secondary screening³ capacity in select airports across the country. In the pilot program, passengers who alarmed a metal detector were offered the option of walking through the scanner instead of receiving a pat-down. The TSA's objective since the

³ "Secondary" screening refers to screening that occurs after a traveler was unable to be cleared by primary screening.

beginning, however, was to utilize these machines as primary screening and replace metal detectors entirely. Admin. Rec., Vol 1C, Doc. 96, p. 1613. In or around October 2010, it implemented the scanners as primary in as many locations as possible based on the number of scanners on hand.

After public outrage relating to the TSA's requirement of, essentially, collecting and examining nude pictures generated of travelers, Congress required the TSA to remove the human element from the image review process. 49 USC 44901(1)(2). As a result, the TSA currently operates only one type of nude body scanner: the L-3 ProVision Dual Pose with Automated Target Recognition (ATR) technology. The ProVision ATR scanner, like all nude body scanners, uses electromagnetic radiation measurements to generate an image of the subject beneath his or her clothing. With ATR, this image is, under typical use scenarios, evaluated by a computer, rather than by a live person viewing the image⁴.

⁴ The TSA publicly states that the ATR machines do not generate nude images as the older, "non-ATR" machines do. This is untrue. ATR machines generate the same images that non-ATR machines generate, but the images are, under typical use scenarios, never viewed by a human. This is evidenced by the fact that the TSA's specification for the ATR machines it purchased require the ability to save and export the images created if the device is placed into "test mode." Admin. Rec., Vol. 4D, Doc. 196, p. 4143. A traveler entering an ATR device has nothing but the assurances of the TSA that test mode has been disabled and the image created of his or her nude body will not be looked at by a human.

B. Timeline of the TSA's Pat-Down Program

When the TSA took over aviation screening duties from private airline contractors in 2002, a limited pat-down procedure was in place for secondary screening. This procedure mostly involved patting the sides of the body for large objects that posed a genuine threat to aviation security, did not include any touching of the “sensitive areas” of travelers, and was not generally considered offensive by the public⁵.

In September 2004, a month after two women in Russia allegedly downed two Russian airliners via explosives concealed around their breasts, the TSA modified the pat-down procedure to include touching the breasts of female travelers. *See* Exhibit A, “TSA modifies pat-downs to exclude breasts,” CNN.com (Dec. 23rd, 2004). After public outcry due to the invasiveness of this search, the TSA again modified the pat-down procedure to probe the breasts only if they alarm a hand-held metal detector. *Id.*

In 2005, the TSA promised to eliminate most pat-downs by replacing them with a combination of hand-held metal detectors and “explosive trace portals.” *See* Exhibit B, “Airport Device to Ease Need for Pat-Down,” New York Times (June 16th, 2005). These ETP devices, colloquially known as “puffer machines,” allow a traveler to walk into a machine that sprays air, which is collected and analyzed for traces of explosives, all within 20 seconds. *Id.*

⁵ A search of the Internet for complaints regarding the TSA's pat-down procedure prior to August 2004 produces few, if any, results.

However, in 2006, mechanical failures proved the ETP machines owned by the TSA to be unreliable. Admin. Rec., Vol 1B, Doc. 39, p. 731. Despite being generally well-received by the public and being an extraordinarily non-invasive means of detecting non-metallic explosives, the TSA shelved, and subsequently destroyed, virtually all of the ETP machines and began planning to replace them with significantly more expensive – even after considering the maintenance that would have been required to cure the mechanical failures – and invasive nude body scanners.

The deployment of nude body scanners in a 2007 pilot program required the TSA to confront the question of what to do if a scan shows an unknown item located on the passenger's body, as well as what to do with passengers who object to being imaged or are physically unable to be imaged (for example, because they are in a wheelchair or because they are unable to hold their arms above their head as required for the scan). The TSA initially elected to use its existing, relatively non-invasive pat-down, in addition to hand-held metal detectors to resolve such "anomalies," and allowed objectors to use the existing screening methods. Admin. Rec., Vol 4A, Doc. 164, p. 3019. However, in 2010, the TSA discontinued all use of hand-held metal detectors, for reasons that have never been explained to the public because the justification has been determined by the TSA to constitute Sensitive Security Information ("SSI"). *Id.* Shortly thereafter, the TSA adopted the new, highly invasive pat-down procedure that is the subject of this petition, and required a pat down for anyone who 1) went through

the body scanners and were not cleared⁶, 2) refused to undergo a nude body scan, or 3) was unable to undergo a nude body scan.

The TSA's written pat-down procedure is SSI. However, since it is, in practice, demonstrated on the general public tens (if not hundreds) of thousands of times daily, it can be easily described by any frequent flyer who is subject to the procedure frequently (or merely pays attention at security checkpoints as others undergo pat downs), such as Petitioner:

The TSA's full body pat down procedure is as follows: 1) The traveler is directed to stand with feet approximately 12" apart and hands out to the sides with upturned palms. 2) If the traveler is wearing any headwear, or has hair in which an item may be concealed, the head is patted down. 3) The collar of the shirt of the traveler is inspected by placing the screener's fingers inside the collar and running them along the entirety of the collar. 4) The screener will use both hands to sweep from shoulder down to the end of the traveler's sleeve, on each arm. 5) The screener will slide his or her hands from shoulders down to waist along the back of the traveler's body several times, moving from one side of the body to the other. 6) The screener will inspect the waistband by putting his fingers inside the pants of the traveler and running them along the back half of the traveler's

⁶ As a result of the fact that virtually anything can be an "anomaly" that would cause a traveler to "fail" a body scan – including a piece of paper left in a pocket, certain types of fabric or buttons, sweaty armpits, medical apparatuses, or something nothing at all – the percentage of "false-positives," and thus travelers who require a pat-down, is actually astoundingly high. Although the TSA claims the false-positive rate is SSI, other governments using the same equipment have estimated anywhere from 30% - 75% of passengers are subject to a false-positive. Exhibit C, "Airport body scanners useless: German police," AFP (Jul. 30th, 2011) (showing 35% false-positive rate in Germany)

waistband. 7) The screener will run his or her hand down the buttocks of the traveler several times, moving from one side of the body to the other. This is the only portion of the search conducted with back of the hands rather than fingertips. 8) The screener will place both of his or her hands on either side of the foot of the traveler and slide them upwards until the inner hand bumps into the genitals of the traveler. This is repeated for the other leg. 9) The screener will either direct the traveler to turn around or will move his or herself to the other side of the traveler. 10) The traveler is instructed to place his or her arms down. 11) The screener will repeat step 5 on the front half of the body, running his or her hands over the chest of the traveler. 12) The screener will repeat step 6 on the front half of the traveler's pants, brushing the traveler's pubic area with his or her fingers. 13) The screener will repeat step 8 on the front half of the body, bumping into the traveler's genitals for a third and fourth time.

Decl. of Jonathan Corbett, ¶ 5.

While the description above is an accurate technical description of the pat-down procedure, the experience as felt by travelers is important to describe as well. The administrative record included the testimony of U.S. Army veteran Pamela Robinson, who described her pat-down as follows:

The female TSA agent told me [to] stand on this black mat and stated that she would be performing a pat-down from the waist down. She would rub her hand inside my "inner thigh" in my groin area. I felt disgusted and stated, "I don't think so. You will not touch me like that." She then tried to convince me by continuing to describe how she was now going to "pat" my entire body down with her hands. I felt sick just hearing her describe how she thought I was going to stand there

and allow her to molest me in front of the public. She stated that I could go to a private room. I stated that I am not going into a private room to be molested either. She needed to find another way other than [to] touch my vagina.

...

The agent went behind me while the supervisor stood there and everyone in the security area was watching and with an open hand touched my head with both hands in which I pulled away because it felt disgusting. She then rubbed her open hands down my neck, back, and butt. Her hands never left my body. She then took her hand and tried to rub it in the inside of my thighs to my vagina, but I would not let her. The supervisor then said, "Can you get up there[?]" (Meaning my vagina) and the agent said no. The supervisor said to me, "If she can not get there [between your legs], you will have to leave the airport." I could not believe what I was hearing. The agent moved on and began to feel inside my waist band of my pants. I stopped her again when she tried to put her hand inside the waistband of "my underwear" and I yelled, Ok you are going too far! She stopped for a moment. The supervisor was still standing there and passengers were still watching as this occurred. We also stood in silence.

I thought we were through until the agent then tried to feel my crotch again from the front but then stopped because I pulled away. Then she tried to rub her entire hand on my breast and then lift my breast when I pushed her hand away and stopped this sexual assault. ... The supervisor said, "We [TSA employees] also feel this is way too invasive[.]"

Admin. Rec., Vol 1C, Doc. 107, pp. 1747, 1748.

In public relations materials, the TSA states that pat-downs are conducted by same-gender screeners. However, the administrative record states that it is the

TSA's secret policy that opposite-gender pat-downs may occur if same-gender screeners are busy or unavailable. Admin. Rec., Vol 4C, Doc. 189, p. 3842. While requiring that travelers consent to having their genitals touched as a condition of flying by a same-sex screener is highly offensive in itself to many, this policy, taken together with the pat-down procedure described above, means that women and female children above the age of 12⁷ may be required to let a man touch their breasts, genitals, and buttocks as part of the TSA's standard screening procedure⁸.

C. Congressional, State, and Public Reaction Has Been Overwhelmingly Negative

The TSA publicly maintains, even in sworn testimony before Congress, that "passenger response to the technology has been overwhelmingly positive." Admin. Rec., Vol 1B, Doc. 66, p. 1220. The administrative record cites a public opinion poll

⁷ The TSA alleges that it has a modified pat-down for children 12 and under. The details of the modified pat-down are SSI and Petitioner does not have information sufficient to detail the changes to the Court. The Court may require the production of that procedure from Respondent if it deems the information useful.

⁸ Petitioner does not wish to suggest that men are in any way less entitled to privacy relating to their own body. *Every* human being has the right to determine who may or may not touch them. The TSA's assertion that same-gender screening is less offensive is only true in that, as a society, we traditionally view men pressing the boundaries of women's bodies as a more serious transgression for reasons that are beyond the scope of this document. However, this Court should (morally) and must (legally) afford men the same protections as women, and take notice that one's right not to be touched by others is not contingent on the gender of either actor.

showing 78% of the public approves of nude body scanners. Admin. Rec., Vol 1B, Doc. 47, p. 935.

This poll, taken weeks after the nude body scanners were designated as primary screening, took advantage of a public that was unaware of what the technology actually entails (to wit, the generation of an image of the traveler's nude body). No other poll ever taken has had similar results, with other polls finding that "61 percent said they oppose the use of body scanners and pat downs." Exhibit D, "Poll: Majority oppose body scans, nearly half seek alternative to flying," The Raw Story (Nov. 23rd, 2010).

An accurate reflection of the public's sentiment toward the nude body scanners and invasive pat-downs can also be found within the administrative record. The TSA included several blog posts discussing these screening procedures⁹, and these blog posts contain replies from a segment of the public actually familiar with the search procedures that can only be described as overwhelmingly *negative*.

For example, the TSA blogged in 2010 about its opinion that nude body scanners are "worth it." Admin. Rec., Vol 1B, Doc. 75, p. 1377. This post attracted 213

⁹ It is unclear to Petitioner how blog posts, press releases, speeches given by officials, *etc.*, constitute a legitimate part of an administrative record, which is supposed to be a compilation of the documents that led up to the decision challenged, rather than a glimpse at the TSA's feelings after implementation. Nonetheless, these blog posts are informative for the purpose of judging public opinion.

comments, not counting those censored by the TSA¹⁰. These comments may be broken down as follows:

Critical of the Screening Procedures:	142
In Support of the Screening Procedures by self-identified TSA employees:	44
In support of the Screening Procedures by all others:	9
Does not clearly articulate a position:	18

Discounting the comments made by self-identified TSA employees and comments that do not clearly articulate a position, there were 151 comments, of which 94% of them were negative (again, not including the presumably negative comments that the TSA did not allow to be shown on its blog).

Some of the choice negative comments included:

"The price being paid - paid in health risks, violation of constitutional rights, and violations of basic morality - is being paid by passengers instead of the TSA, so of course the TSA feels the price is worth it." [AR 1413]

"I don't think you understand the utter lack of confidence Americans have in your agency to tell the

¹⁰ On the bottom right of the second page of this document, there is a counter of comments that were submitted to the blog, but not allowed for public display by the TSA. This counter reads 3,691.

truth and do the right thing. Given how often TSA misleads and us and abuses passengers, why should we trust a single thing you tell us about these scanners?" [AR 1383]

"I believe the majority [of the] public support with these machines is due to lack of knowledge on the real images it can display..." [AR 1386]

"We will not allow your screeners, such as the one pictured above, from viewing us or our children naked - period. Gale, what part of 'this is unacceptable' don't you understand?" [AR 1387]

"That is a pedophile's dream job." [AR 1404]

The ratio of positive to negative comments on this blog post is consistent with that of the several other blog posts that the TSA included in the administrative record. Admin. Rec., Vol 1A, Doc. 13, p. 213; Admin. Rec., Vol 1A, Doc. 24, p. 461; Admin. Rec., Vol 1B, Doc. 70, p. 1281; *etc.*

Support of federal and state legislators, much like the public, varies largely with whether the legislator has experienced TSA search procedures first-hand. Many members of Congress have expressed serious concerns about the privacy issues create by the TSA's adoption of these policies. Exhibit E, "John Mica Attacks TSA 'Chat-Downs' As 'Idiotic,' Says Screening Failures Are 'Off The Charts,'" Huffington Post (Oct. 24th, 2011); Admin. Rec., Vol 1C, Doc. 107, p. 1745 ("So, for all those listening in, it's still going to be the same. It will be the intrusive pat-down and it will be the - or the advanced imaging. Or both."); Admin. Rec.,

Vol 1B, Doc. 43, p. 919 (“The TSA will capture the naked pictures of traveling Americans suspected of no wrongdoing.”).

State legislatures across the nation have sought to limit or ban the TSA’s invasive search techniques. At the least, New Jersey, Hawaii, New Hampshire, and Texas all have, or have had, bills pending in response to this TSA abuse. See Mot. for Prelim. Injunction, Exhibit M. After going through the TSA’s pat-down once, Alaska State Rep. Sharon Cissna made national headlines by refusing to submit to such screening again, traveling to her home state by boat instead. *Id.*

D. The Nude Body Scanner Program is Ineffective at Protecting Aviation Security, but Effective at Finding Drugs

The TSA has proffered only one security advantage that the extraordinarily expensive and highly controversial nude body scanners, as well as the related intensely invasive pat-down procedure, have over the existing metal detectors: that, absent the scans and the pat-downs, a terrorist may smuggle non-metallic explosives aboard an aircraft. Admin. Rec., Vol 1B, Doc. 45, p. 915.

However, the TSA has failed, as a review of the “public” volumes of the administrative record will show, to publicly offer any evidence to support its conclusion that nude body scanners are effective for the stated purpose. The TSA has

labeled all internal data relating to the performance of the body scanners at detecting threat items, as SSI. Admin. Rec., Vol. 4A, Doc. 144, pp. 2388 – 2401; Vol. 4A, Doc. 149, pp. 2590 – 2609, 2616 - 2621; Vol. 4A, Doc. 159, pp. 2771 – 2865; Vol. 4B, Doc. 186, pp. 3656 – 3731; Vol. 4A, Doc. 159, p. 2772. The TSA even labels the target “false-negative” rate requested of manufacturers, as well as the false-positive rates experienced in the field, as SSI. Admin. Rec., Vol. 4A, Doc. 141, p. 2272; Vol. 4C Doc. 190, p. 3880.

While Petitioner is only left to hypothesize as to the results of the TSA’s internal testing, the only reason to hide the numbers is if they would be encouraging to terrorists and, conversely, discouraging to Congress and public. That is, if the scanners were nearly unbeatable, the TSA would publish their findings to discourage terrorists and gain praise from their overseers. However, there exists a plethora of evidence to suggest that the numbers are bad^{11,12}.

¹¹ The Court has access to these numbers, as the non-redacted records containing them have been filed *ex parte* and under seal. Should the Court deny Petitioner’s request for access to this data (*see* Argument, section IV), the Court will have to ask the question by itself: “What would constitute ‘good’ numbers?” The Court should consider that metal detectors alarm 100% of the time that metal is placed inside of them, and that numbers not extraordinarily close to 100% indicate a technology that is simply not ready for use at aviation security checkpoints.

¹² Even if the TSA’s numbers are indeed “good,” this does not settle the issue. The Court must consider whether the TSA’s testing was as realistic as the other evidence presented herein. For example, if the TSA’s test involved screeners in a lab setting using controlled threat simulations with screeners who knew they were being tested, this would tend to be less conclusive than data collected in actual airport environments,

First, several U.S. government sources have alluded to the failure rate of the nude body scanners. U.S. Senator John Mica was quoted as saying, “The failure rate for nude body scanners is classified but it would absolutely knock your socks off.” Exhibit E. The Government Accountability Office (GAO), in discussing a passenger who boarded an overseas flight with an explosive, stated that it is “unclear whether the [nude body scanners] or other technologies would have been able to detect the weapon...” Admin. Rec., Vol 1B, Doc. 54, p. 1106. A former TSA screener, interviewed by Petitioner on-camera, stated that both during testing and in live usage at the checkpoint, items would frequently go undetected:

Interviewer: Were there specific times where this machine didn't work, for either someone testing it, or a passenger went through and it was determined that they went through with...

Former TSA Screener: Absolutely. Yes, absolutely.

Interviewer: Metal objects?

Former TSA Screener: Metal, non-metal.

Interviewer: Big, small?

Former TSA Screener: Both.

such as the evidence provided by Petitioner of false-positive rates released by foreign countries and the Petitioner's trip through the body scanners with undetected objects.

“TSA Admits \$1B Nude Body Scanner Fleet Worthless,” Jonathan Corbett (April 10th, 2012), http://www.youtube.com/watch?v=3CV_tJv7P2o.

Second, many agencies across the world have published false-positive rates – that is, percentages of the time that the nude body scanners indicate that there is a threat when there is not. Exhibit F, “Airport body scanners useless: German police,” AFP (Jul. 30th, 2011) (showing 35% false-positive rate in Germany); Exhibit G, “High false alarm rate for TSA body scanners raises questions,” Alaska Dispatch (Dec. 24th, 2011) (France tests, then refuses to continue use of nude body scanners due to high false positive rate).

Third, many independent studies have shown the scanners to be ineffective. Nude body scanners operate not by “detecting” explosives, but rather they merely create an image that has to be viewed and interpreted – either by man or machine. Like all imaging devices, blind spots and “camouflage” vulnerabilities exist for nude body scanners that, under certain circumstances, would prevent them from allowing an operator to identify a genuine threat.

Petitioner, a technology expert, has conducted independent study into the “blind spot” issue, and his work has been published by international media, presented to the United States Congress, and entered into the record by the legislature of the State of Texas. Decl. of Jonathan Corbett, p. 3. In brief summary, Petitioner found that blind spots inherent in all of the nude body scanner technologies implemented by the TSA

prevent the operator from identifying any metallic objects (or non-metallic objects merely placed inside of a metal container) located on the side of the body of an individual being scanned. See Mot. for Prelim. Injunction, Exhibit F, ¶¶ 24 – 38. Petitioner proved his research by testing at multiple airport checkpoints with different types of TSA body scanners, including the current L-3 ProVision ATD model, on camera, and was successful in passing through the checkpoint with metallic objects each time. *Id.*

Others have studied the “camouflage” issue, wherein explosive material can be flattened and contoured to the body such that it is indistinguishable from the skin via a nude body scanner. Two professors of the University of California, San Diego, concluded in a research paper published in the Journal of Transportation Security, that:

It is very likely that a large (15-20 cm in diameter), irregularly-shaped, cm-thick pancake with beveled edges, taped to the abdomen, would be invisible to this technology, ironically, because of its large volume, since it is easily confused with normal anatomy. Thus, a third of a kilo of PETN, easily picked up in a competent pat down, would be missed by backscatter "high technology".

Exhibit H, Excerpt from “An evaluation of airport x-ray backscatter units based on image characteristics,” Kaufman, Leon, M.D., Carlson, Joseph, Ph.D, Journal of Transportation Security (Nov. 9th, 2010).

The problems described above are so significant that, realistically, a would-be terrorist would *prefer* his or her odds against a body scanner than a metal detector because metal detectors do not have blind spots: the magnetic field measured by a metal detector cannot be blocked by any method known to man. Decl. of Jonathan Corbett, ¶ 6.

Finally, the nude body scanners (and TSA in general), to date, have caught 0 terrorists, but frequently catch guns and drugs. Admin. Rec., Vol 1B, Doc. 45, pp. 925 – 932; Admin. Rec., Vol 1C, Doc. 99, pp. 1655 – 1661; Mot. for Preliminary Injunction, Exhibit J. However, all of the guns found have been metallic – and thus would have alarmed a simple metal detector – and all of the drugs found are irrelevant to aviation security.

E. More Effective, Less Invasive Screening Methods Exist

The limited support that the TSA has for the nude body scanners and pat-down procedures in Congress, in the eyes of the public, and in the courts so far is a direct result of the TSA's insistence that these devices are necessary to mitigate the threat of non-metallic explosives. Admin. Rec., Vol 1C, Doc. 107, p. 1776; see also Mot. for Prelim. Injunction, Exhibit A, ¶ 17 (“This necessarily includes using advanced imaging technology and pat-downs...”). When given the choice between sacrificing some of their privacy or risk being blown up, many people – especially politicians who would

not want to have the finger pointed at them for being “responsible” for allowing the next terrorist attack to happen – choose the former¹³.

However, this is a false choice, and the TSA has deliberately misled the public, Congress, and the courts into concluding that no less invasive alternatives can “do the job.” At least three other technologies are available to the TSA for the purpose of screening travelers for explosives, and a review of the administrative record shows that the TSA’s decision to use nude body scanners and pat-downs over these other technologies was arbitrary and capricious.

The first of these “technologies” is the bomb-sniffing dog. Canines have been used to detect chemical signatures for at least 12,000 years. Exhibit I, Excerpt from “The scientific foundation and efficacy of the use of canines as chemical detectors for explosives,” Furton, Kenneth G., Meyers, Lawrence J. (2001), p. 1. The Department of Defense has trained explosives detection canines to be accurate in excess of 95% of the time. *Id.*, p. 3.

The TSA has both explicit funding for canine teams and a plethora of discretionary funding that could also be applied towards dogs. Admin. Rec., Vol 1C, Doc. 129, p. 1889. Yet, by the time the TSA had introduced nude body scanners and the invasive pat-down routines, they had not yet even tested the operational effectiveness of canine teams. Exhibit J, “TSA Explosives Detection Canine

¹³ “*They who can give up essential liberty to obtain a little temporary safety, deserve neither liberty nor safety.*” ~Benjamin Franklin

Program,” GAO (Jan. 31st, 2013), p. 20 (“TSA began deploying PSC teams in April 2011 prior to determining the teams’ operational effectiveness”). By February 2013, the latest mention in the administrative record, the TSA has still not fully utilized its funding for canine teams. Admin. Rec., Vol 1C, Doc. 129, p. 1889.

The second technology available to the TSA is the Explosive Trace Portal. See Statement of Facts, Section B; see also Mot. for Prelim. Injunction, Exhibit H. These devices are, compared to nude body scanners and pat-downs, quite non-invasive, and were implemented by the TSA in trials in 2005. Admin. Rec., Vol 1B, Doc. 39, p. 765. By the end of 2006, most of these ETP machines were removed from airport screening duties not because they did not accurately detect explosives, but because they required more maintenance, and therefore more money, than expected. *Id.* The TSA, soon thereafter, replaced ETPs with nude body scanners that *cost more than one billion dollars* to purchase and operate over 8 years. Admin. Rec., Vol 1C, Doc. 85, p. 1481 (requesting FY 2011 increase of \$217.5M for nude body scanner equipment plus \$218.9M for screeners to run the scanners, totaling \$436.4M in 2011 *alone*). For the money that the TSA spent on under 1,000 nude body scanners, they could literally have bought the same number of ETP machines and hired a full-time mechanic to stand next to *each* of them.

The third of these technologies is the Explosive Trace Detector. Mot. for Prelim. Injunction, Exhibit I. ETD machines allow a screener to touch a small cloth to any surface – anything from carry-on baggage to the hands of a traveler – and then test that

cloth for explosive residue. *Id.* These devices, far cheaper than both nude body scanners and ETPs, *have* actually been deployed by the TSA to checkpoints, but they are *not* used as a first-line screening option. A review of the administrative record shows no rationale behind why sending a traveler through a metal detector and then performing an ETD swab of their hands would not be sufficient to detect both metallic threats and non-metallic explosives.

Indeed, the three screening methods here have a distinct advantage (beyond their cheaper cost and minimally-invasive nature): these technologies can detect explosives hidden within body cavities, while nude body scanners and pat-downs cannot. Nude body scanners create images only of the surface of the body – that is, the skin – and would not see an explosive device hidden inside the rectum of a suicide bomber. But because dogs, ETP, and ETD do not merely provide an image of the traveler's body, but actually test for the presence of chemical compounds that would be all over the body of an individual recently working with explosives, these tools are our *only* chance at catching a determined terrorist.

F. The TSA Has Misled The Public As to the Likelihood of the Threat “Addressed” By Nude Body Scanners and Pat Downs

Petitioner does not dispute that terrorism exists and that there are individuals in this world that would, if given the opportunity, murder innocent civilians by detonating an explosive on aircraft. The events that took place on 9/11 caused a massive loss of human life. The conversation must not end there, however. If the Court is to analyze whether the TSA’s nude body scanner program is reasonable, it must analyze the likelihood that a terrorist will attempt to take non-metallic explosives onto an airplane.

No terrorist has attempted to take an explosive on board an airplane through a U.S. airport since approximately 35 years ago. Exhibit K, “American Airlines Flight 444,” Wikipedia (Last Updated Sept. 28, 2013). All of the explosives brought on board airplanes discussed in the administrative record happened *outside* of the United States.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. Admin. Rec., Vol 3, Doc. 136, p. 2196 (U//FOUO).

The hijackers on 9/11 had no explosives; only knives. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. Admin. Rec., Vol 3, Doc. 136,
p. 2197 (U//FOUO). [REDACTED]

[REDACTED]. *Id.* [REDACTED]

[REDACTED]. *Id.*

[REDACTED] Admin. Rec., Vol 3, Doc.
137, p. 2219 (U//FOUO).

Even if TSA actually did deter terrorists from passing through TSA checkpoints with explosives with its nude body scanners and invasive pat-downs, there is no evidence that this prevents terror rather than merely shifting the target to buses, trains, stadiums, or even the checkpoint of the terminal. In 2011, terrorists indeed detonated an explosive device at an airport checkpoint at Domodedovo Airport in Moscow, Russia. Exhibit L, "Domodedovo International Airport bombing," Wikipedia (Last Updated Aug. 31st, 2013). By using procedures that take significantly longer than the prior metal

detector search (a few seconds per passenger), the nude body scanners (22 seconds per passenger) and pat-downs (about 3 minutes per passenger) extend the security lines, creating a terrorist's dream target of hundreds of unarmed travelers plus dozens of unarmed federal officers.

The TSA's inability to evaluate and strategize based on a rational conception of the risks we face is highlighted by the GAO's finding that the TSA failed to apply a risk-based strategy when it comes to checkpoint screening technology, despite the TSA's filling of both public press releases and private presentations with the term "risk-based" at every opportunity. Admin Rec., Vol 1B, Doc. 39, p. 732. This finding was re-iterated in a subsequent GAO report, concluding that the TSA has "no national strategy" for checkpoint screening. Admin. Rec., Vol 1B, Doc. 42, p. 891. The ample conjecture spewed by the TSA stating that nude body scanners and invasive pat-downs are necessary are simply not backed up by numbers.

Non-government studies have reached the same conclusions as the GAO. Dr. Sommer Gentry, Ph.D., professor of mathematics specializing in operations research at the U.S. Naval Academy, analyzed the TSA's documents and other's research of the same. In her June 2012 presentation to Congress, she notes that risk analysis capabilities are lacking throughout the TSA's parent, Department of Homeland Security. Exhibit M, "TSA Documented Abuses, Legal Issues, Security Issues, and Health Risks," Gentry, Sommer, Ph.D, slide 6. And, when the TSA does engage in an

attempt at risk-analysis, it chooses to “weight heavily its consequence analysis, where magnitudes of effects can be estimated, and to reduce the weight attached to threats, where the uncertainties are large.” In other words, the TSA fixates on how bad the worst possible scenario would be while neglecting how unlikely that scenario is, thus requiring absurd security practices for unrealistic events and failing to address more realistic, but less “sensational” problems.

These absurd security practices cost not just money and our right to be free from unreasonable search, but actual lives. Studies have found that for every one million would-be air travelers that choose to drive instead of fly because they do not want to deal with the TSA’s security theatre, 15 of those travelers will die because car travel is inherently less safe than air travel. *Id.*, slide 23. Estimates place the percentage of travelers who drive to avoid TSA security at about 6%, which calculates to over 500 additional road deaths *per year*. *Id.* The TSA’s invasive search routines would have to prevent the sabotage of three fully-loaded Boeing 737s per year in order to save net lives.

SUMMARY OF ARGUMENT

The Fourth Amendment to the U.S. Constitution prohibits search without probable cause. An exception to the probable cause requirement has been carved out for “administrative searches” – searches that are conducted for specific public safety purposes, rather than general law enforcement objectives. *U.S. v. Aukai*, 497 F.3d 955 (9th Cir. 2007) (*en banc*). Searches may not be more extensive or intensive than necessary to further that purpose. *Id.* Seizures must be evaluated against a reasonableness test that balances the threat against the efficacy and the intrusiveness of the search. *Illinois v. Lidster*, 540 U.S. 419 (2004).

For the reasons explained herein, both the nude body scanners and the pat-downs are more extensive and intensive than necessary to detect non-metallic explosives in light of available alternatives. Additionally, they are ineffective at addressing the threat at hand and are incredibly invasive, which is to be balanced against the risk of a threat for which the TSA has admitted [REDACTED]. Accordingly, both procedures are independently unconstitutional.

ARGUMENT

I. Because Less Intrusive Alternatives Render the TSA's Highly Invasive Pat-Down Procedure Unnecessary, the Pat-Down Procedure is Unreasonable Under the Fourth Amendment

“A particular airport security screening search is constitutionally reasonable provided that it ‘is no more extensive nor intensive than necessary, in the light of current technology, to detect the presence of weapons or explosives [][and] that it is confined in good faith to that purpose.’” *Aukai*, *citing United States v. Davis*, 482 F.2d 893, 913 (9th Cir.1973).

The TSA's pat-down procedure is extraordinarily extensive, requiring a screener to touch every part of a traveler's body, including the traveler's genitals, breasts, and buttocks. *See* Statement of Facts, Section B. Unlike virtually every other screening method, save for the nude body scanners, a pat-down search makes no attempt to limit what it can find to the narrow class of items that the TSA is allowed to search for: weapons or explosives. A metal detector (walk-through or handheld) detects only metal, since virtually all weapons consist of metallic components¹⁴. Explosive Trace

¹⁴ Indeed, even explosive devices typically have a metal detonator. The TSA makes much ado about entirely non-metallic explosives, but has never identified a single terrorist who was able to create a non-metallic explosive sufficient to destroy an airplane. Even the famed “underwear bomber,” who allegedly possessed a non-

Portals, Explosive Trace Detectors, and Explosive-Sniffing Canine teams all limit the breadth of their search to finding the signatures of chemical compounds known to be used in bombs. Even x-ray machines are calibrated such that threat items appear more prominently on-screen, while your lingerie collection will be minimally visible and the text on your prescription bottles unreadable.

The extensive nature of both the pat-down and the nude body scanners leads to the TSA's finding of small quantities of drugs on a regular basis. See Statement of the Facts, Section D. But, the TSA may not search for the purpose of finding general contraband under the administrative search doctrine, which is precisely why the *Aukai* court chose the wording that it did.

The TSA's pat-down procedure is also extraordinarily intensive. The use of fingers to palpate the skin makes the TSA's pat-down procedure the most intensive search ever conducted. Compare, for example, a police "stop-and-frisk", where a police officer is permitted, given reasonable suspicion that a suspect is armed and dangerous, to pat-down a person for the purpose of finding weapons. *Terry v. Ohio*, 392 U.S. 1 (1968). In such a search, the officer is not permitted to manipulate the contents of pockets to search for general contraband, but rather must briefly feel for weapons. *Minnesota v. Dickerson*, 508 U.S. 366 (1993). The TSA, on the other hand,

metallic explosive, failed at his mission because he did not possess a functioning detonator.

uses fingertips to examine pockets (among other things), and if any item whatsoever is felt, even if the screener has no reason, or is certain, that the item is not a weapon or explosive, the screener will ask the traveler to remove the item for closer inspection. Courts have found that at this point, the traveler may not withdraw consent, forcing the traveler to comply with a search for general contraband in violation of the administrative search doctrine. *Aukai*.

Use of more intensive pat-downs may be reasonable in some airport screening scenarios – for example, when other search techniques indicate the presence of an unknown item that may possibly be a weapon or explosive. Courts have looked favorably on this approach: Searches are reasonable if they “escalat[e] in invasiveness only after a lower level of screening disclose[s] a reason to conduct a more probing search.” *U.S. v. Hartwell*, 436 F.3d 174, 180 (3rd Cir. 2006). But, the TSA gives these intensive pat-downs as *primary* screening, meaning many who encounter them have undergone no other checkpoint screening and have given the TSA no reason to utilize a more intensive screening method.

The “than necessary” clause of the *Aukai* test is fatal to the TSA’s argument that its pat-down program is constitutional because alternative screening options exist that are at least as effective at achieving the legitimate governmental objective, yet significantly less extensive and intensive. Petitioner has detailed for the Court three alternative technologies that the TSA has tossed aside. See Statement of Facts, Section

E. These technologies have astounding detection rates, can detect explosives that are not discernable by pat-downs (such as in a body cavity or in the traveler's carry-on), and do not offend the liberties of travelers. *Id.* If the TSA would like to implement a search that is significantly more invasive than other options it has available, it must prove to the Court that it has a rational argument for why it has done so; the administrative record fails to provide that rational argument.

Since administrative searches do not depend on consent, for the duration that a traveler is required to remain at a checkpoint, in addition to being searched, the traveler has also been seized. *Aukai*. The balancing test for whether a seizure is constitutional requires the consideration of “the gravity of the public concerns served by the seizure, the degree to which the seizure advances the public interest, and the severity of the interference with individual liberty.” *Lidster*, citing *Brown v. Texas*, 443 U.S. 47, 51.

The administrative record has not detailed a compelling argument that the gravity of the public concerns served is extraordinarily high. The TSA would like the courts – as well as Congress and the public – to consider only the potential worst-case scenario, should the TSA not implement highly invasive searches (and the related seizures), but the likelihood of that scenario must also be factored into that equation.

The TSA has conceded that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁵. See Statement of Facts, Section F. It is possible that a terrorist will seek to blow up an elementary school, and it has indeed happened before¹⁶. Such an event would be no less devastating than a jetliner exploding mid-flight, but we don't implement pat-downs at elementary schools because the risk of the worst-case scenario is low. The same logic *must* be applied to airport security instead of knee-jerk "But 9/11!!" emotional reactions.

The administrative record fails to show that the invasive pat-down program advances the government's interests to a high degree. Because it is extensive, rather than searching for specific indicia of explosives, the pat-down procedure will miss the opportunity to detect that the traveler was in the presence of a bomb that is not, at the instant of the search, physically attached to his body. An explosive device placed inside a body cavity will not be detected by a pat-down, nor will an explosive that was smuggled in through other means (through carry-on or checked baggage, through the help of an accomplice, *etc.*)¹⁷. There exist technologies specifically designed to detect

¹⁵ [REDACTED]

¹⁶ Beslan school hostage crisis, Beslan, Russia (2004). Over 300 dead, including over 150 school children, many of whom were burned alive.

¹⁷ The TSA sometimes uses other technologies, such as Explosive Trace Detectors, *in addition* to the pat-downs. But the pat-down itself is independent from, and can be decoupled from, ETD testing. The TSA cannot simply argue that, "we may as well do

explosives, which better advance the government's interest in finding non-metallic explosives.

Finally, the administrative record and evidence provided by Petitioner show that the TSA's invasive pat-down procedure is the most invasive search the TSA has ever conducted for primary screening. It requires no case law or administrative record to understand that the ability to control who touches the most private areas of one's body is the most basic foundation of privacy. As a society, we imprison, and then create lists of people who do not respect other's right to control their own bodies, and we publish those lists so that all those around the individual are aware of his or her transgressions.

Yet, the TSA pretends that it does not understand why this is a "big deal." The TSA dismisses not only the average adult who is merely offended by the notion of being touched all over his or her body by a stranger, but they also dismiss those for whom a search is beyond merely offensive. The TSA dismisses the handicapped, leaving them covered in bodily fluids. See Mot. for Prelim. Injunction, Exhibit O. The TSA dismisses rape survivors with post-traumatic stress disorder, leaving them in tears or sending them to the hospital for psychiatric care. See Mot. for Prelim. Injunction, Exhibits Q, R, S. The TSA dismisses children (and the rights of parents), terrorizing

a pat-down too because maybe it will help," or the TSA could justify virtually any search. Each component of the TSA's screening regimen must serve a useful and constitutional purpose, rather than simply adding a "layer" of security solely for the purpose of having more layers.

them and conditioning them to accept the touch of strangers. See Mot. for Prelim. Injunction, Exhibit T.

II. Because The Nude Body Scanner Program Is Not Narrowly Tailored to Aviation Security Needs, the Program is Unreasonable Under the Fourth Amendment

As with the invasive pat-down program, the nude body scanner program is both more extensive and more intensive than necessary to accomplish the government's aims. The nude body scanner, as the pat-downs, image every detail of the traveler's body, without regard to any kind of minimization. The scanners do not make any attempt at distinguishing between a firearm, a quarter-sized baggie of drugs, a nicotine patch, or a nipple. All are imaged and reviewed, whether by man or machine, and any objects found – even if there is no possibility that they could be a weapon – result in the traveler being forced to show them to the screener.

Again like the pat-downs, the nude body scanners serve to palpate every inch of skin, this time with electromagnetic radiation rather than fingers. Every crevice, fold, and bump is turned into a picture of the traveler's nude body. It is, essentially, the high-tech version of an invasive pat-down.

Since the pat-downs and the nude body scanners share the same objective – the detection of non-metallic explosives – the same alternative screening technologies can be used here. ETP, ETD, and canines all would cost the taxpayer less money to implement than the nude body scanner program (indeed, all three could be implemented simultaneously for less than the TSA spends on nude body scanners), all have efficacy rates higher than anything the nude body scanners have ever been shown to achieve, and do not offend the liberties of travelers. As with the pat-downs, if the TSA would like to implement a search that is significantly more invasive than other options it has available to it, it must prove to the Court that it has a rational argument for why it has done so; the administrative record fails to provide that rational argument.

For the *Lidster* gravity/degree/liberty test, gravity has already been discussed *supra*. The degree to which the nude body scanners advance the government's interest, however, is even less than the minimal degree to which a pat-down advances the government interest due to the simplicity of exploiting blind-spot and camouflage weaknesses. The blind-spot vulnerability can be exploited simply by encasing any weapon or explosive in metal and transporting it on the side of one's body (for example, in a side pocket on a shirt, or strapped to the side of one's leg. The camouflage vulnerability, which is particularly serious for plastic explosives, can be exploited simply by using a common rolling pin to flatten the explosive, and then wrapping that

flat explosive around any body part. The Court must ask the TSA, “What good is a security technology that can be beaten with minimal effort?”

The liberty prong of the *Lidster* test, as applied to the nude body scanners, is also nearly the same as for the pat-downs, except instead of offensive touching, the nude body scanners conduct a high-tech strip search. “We cannot conceive of a more basic subject of privacy than the naked body. The desire to shield one's unclothed figure from view of strangers, and particularly strangers of the opposite sex, is impelled by elementary self-respect and personal dignity.” *York v. Story*, 324 F.2d 450 (9th Cir. 1963). Debate can be had amongst reasonable people as to whether being touched in your intimate areas by strangers is more or less offensive than being forced to expose your intimate areas for the visual inspection of strangers, but it is undisputable that any reasonably modest individual will be offended by both.

III. The Court Must Release Plaintiff From Its Order Barring Disclosure of Certain Documents

The Court has ordered that Petitioner be provided only with administrative records that constitute proprietary, copyrighted, or “For Official Use Only”-designated records on the condition that he be barred from releasing them. *See* Order (June 5th, 2013). The Court has also ordered additional briefing on whether the Respondent must

provide Petitioner with documents marked SSI, as well as unclassified summary of classified documents.

At the outset, Petitioner notes that Respondent has not entirely complied with the Order. In particular, many sections of the “FOUO” documents provided to Petitioner have been redacted. See, for example, Admin. Rec., Vol. 3, Doc. 137, p. 2212. As best as is discernible, these sections are unclassified and have not been marked as SSI. Respondent has provided no explanation as to its unilateral decision to redact these sections, and should be ordered to show cause as to why it has failed to comply with the Court’s order.

Documents that are under copyright protection already have a means by which the intellectual property owner may protect its interest: through the civil court system via copyright infringement actions. Respondent has shown no reason as to why existing copyright law is insufficient to protect the interests of the intellectual property holders, and the Court’s order that Petitioner not release these documents constitutes an unconstitutional prior restraint on Petitioner’s speech. See *Near v. Minnesota*, 283 U.S. 697 (1931); *Nebraska Press Association v. Stuart*, 427 U.S. 539 (1976). Petitioner moves the Court to vacate this order and clarify that Petitioner is under no court-imposed restriction in regards to publishing these documents.

The documents that the TSA alleges are “proprietary” are, essentially, manuals for their nude body scanners. To the best of Petitioner’s knowledge and after a review

of the propriety materials, nothing contained within these documents constitutes a trade secret or other information which would impede the ability of the document's author to remain competitive in the nude body scanner business. The technology behind the nude body scanners is not novel or cutting-edge, but rather has been around for 20 years. Admin. Rec., Vol. 2, p. 1913. The proprietary materials do not detail, for example, the secret algorithm behind L-3's automated threat detection, but rather detail that the machines meet the specifications that were drafted by the TSA. As such, these documents deserve no protection.

The documents that the TSA has labeled "FOUO" are two threat assessments¹⁸ that are 2 and 5 years old, respectively. These documents [REDACTED]
[REDACTED]
[REDACTED]. It is in the public interest to release these documents because they contain the bombshell revelation that the TSA has [REDACTED]
[REDACTED]. Admin. Rec., Vol 3, Doc. 137, p. 2219 (U//FOUO). Much like the revelation that the NSA has been *en masse* capturing the phone records, e-mail, and social networking of Americans across the country, the above fact would significantly affect public sentiment regarding whether the TSA's search procedures

¹⁸ The government has authorized Petitioner to publicly disclose the table of contents of the sealed records; therefore, this sentence need not be redacted from the public version of this brief.

are in any way necessary. Petitioner respectfully moves the Court to unseal these documents, or, at the least, unseal the paragraph Petitioner has referred to above.

IV. The Court Should Require the TSA to Disclose Additional Documentation and Grant Leave to File Supplemental Briefing

The Court, in its June 5th, 2013 order, correctly noted that “Congress has authorized the disclosure of ‘Sensitive Security Information’ during discovery to civil litigants who show “substantial need” for the information...” *Ibrahim v. D.H.S.*, 669 F.3d 983 (9th Cir. 2012). At the core of Petitioner’s constitutional argument is that the TSA, even through its own testing, has not justified the nude body scanners and pat-downs as absolutely necessary in light of alternative technologies. But, Respondent has marked all of the evidence proving that these machines do not outperform the available, less invasive alternatives as SSI. Petitioner can piece together enough to demonstrate that the evidence will be favorable to his case. *See*, for example, Exhibit E (“The failure rate for nude body scanners is classified but it would absolutely knock your socks off.”). But the actual numbers would move the evidence upon which Petitioner can argue from circumstantial to a concrete, numerical admission by the TSA itself that their machines do not perform.

Other documents that have been withheld due to SSI designations have significance as well. For example, the TSA has withheld the instructions for its

invasive pat-down procedure, leaving Petitioner to piece them together from experience. Since the TSA, in many public fora, has denied genital touching (although uses euphemisms with essentially the same meaning), it would be useful for the purposes of this case to have the exact TSA procedures as explained to TSA screeners.

Petitioner, a U.S. citizen with no criminal background, could easily pass any background screening that the TSA conducts on others to whom it provides SSI. The TSA should be ordered to complete such screening for Petitioner (if the TSA deems it necessary and has not already done so) and then provide petitioner with a non-redacted copy of the SSI volumes of the administrative record.

Finally, the Court also correctly noted in its order that the Court may “permit the government either to redact the classified information or to substitute a summary or a statement of factual admissions in place of the classified documents.” *U.S. v. Campa*, 529 F.3d 980 (11th Cir. 2008). The right of Petitioner to have access to the administrative record relevant to his proceedings must be balanced against the need for the government to maintain the secrecy of its classified information. The TSA, thus far, has articulated no reasonable argument for why this balance is not properly struck via providing the Petitioner as much information as possible – either via a summary or partially redacted documents – without revealing classified information. The TSA should be required to explain itself to the Court’s satisfaction *ex parte*, or to release a summary or partially redacted documents.

Should the Court release any additional documents to the Petitioner, Petitioner respectfully requests an opportunity to provide supplemental briefing.

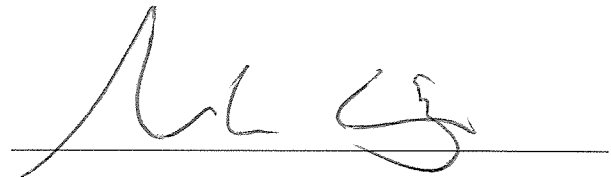
CONCLUSION

The TSA could secure our nation's airports from both metallic and non-metallic threats using metal detectors combined with ETP, ETD, or canines. Such a search would be effective, minimally-invasive, and would comport with Fourth Amendment requirements.

Instead, the TSA chooses to utilize more invasive, yet less effective, search procedures that abuse the constitutional rights of travelers. Petitioner asks the Court to consider the constitutionality of both the nude body scanners and the pat-down procedure separately, and to rule both of them unconstitutional. To assist in the Court's determination, Petitioner first asks that he be allowed to examine and argue based on evidence not yet provided.

Dated: Miami, Florida
October 4th, 2013

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Jonathan Corbett', is written over a horizontal line.

Jonathan Corbett

Petitioner, *Pro Se*

382 N.E. 191st St., #86952

Miami, FL 33179

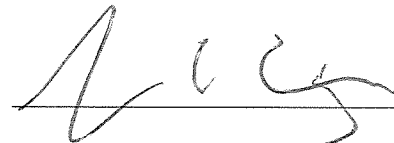
E-mail: jon@professional-troublemaker.com

CERTIFICATE OF COMPLIANCE

I, Jonathan Corbett, *pro se* Plaintiff in the above captioned case, hereby affirm that that this brief complies with Fed. R. App. P. 32(a) because it contains approximately 11,032 words using a proportionally-spaced, 14-point font.

Dated: Miami, Florida
October 4th, 2013

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Jonathan Corbett', is written over a horizontal line.

Jonathan Corbett

Petitioner, *Pro Se*

382 N.E. 191st St., #86952

Miami, FL 33179

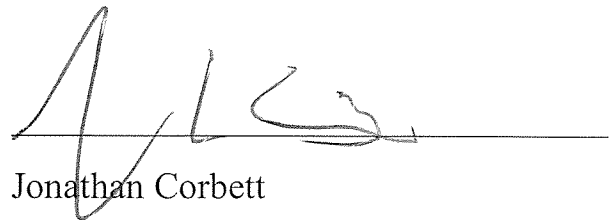
E-mail: jon@professional-troublemaker.com

CERTIFICATE OF SERVICE

I, Jonathan Corbett, *pro se* Plaintiff in the above captioned case, hereby affirm that I have served Defendant United States of America this **Brief of Petitioner Jonathan Corbett** on October 4th, 2013, to Sharon Swingle, via electronic mail at the following address: Sharon.Swingle@usdoj.gov.

Dated: Miami, Florida
October 4th, 2013

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'J. Corbett', is written over a horizontal line.

Jonathan Corbett

Petitioner, *Pro Se*

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Miami, FL 33179

E-mail: jon@professional-troublemaker.com

Exhibit A

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TRAVEL

TSA modifies pat-downs to exclude breasts

Thursday, December 23, 2004 Posted: 11:17 AM EST (1617 GMT)

WASHINGTON (CNN) -- The Transportation Security Administration announced late Wednesday that it is modifying pat-down procedures at airports -- a decision that comes after hundreds of complaints, most of them from women, that the procedure is too intrusive.

Under the new guidelines, screeners will not be able to pat-down a passenger's breast area unless the handheld metal detector goes off or if there is an irregularity in the passenger's clothing outline, said TSA spokesman Dave Steigman.

Steigman said that under the new policy, passengers will have their sides patted down. Once that is done, there will be a limited torso pat-down from front to back, from a line below the chest area to the waist. Screeners will pat the entire back.

He also said people in wheelchairs will not have to get out of their wheelchairs for the pat-downs. The screening will be done while they are seated, using the wand and explosive trace detection machines, he said.

However, he said other passengers who cannot walk through the metal detector, including people with walkers, will have to undergo the full body pat-down.

The new procedures take effect Thursday, Steigman said.

He would not say what prompted the change. He said criticism to the agency of the pat-downs has amounted to a few hundred complaints out of an estimated

50 million passengers who have flown since the procedure was implemented.

The TSA began conducting the full body pat-downs in August after female suicide bombers downed two Russian airliners, killing 89 people.

story.travel.tue.jpg



The holiday travel season is in full swing at airports across the nation.

VIDEO

The TSA has refused to reveal the regulations allowing passenger pat-downs.



[PLAY VIDEO](#)

RELATED

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Many of the complaints about the pat-downs have come from women who said they felt violated by them.

Helen Chenoweth-Hage, a former Republican congresswoman from Idaho, said screeners at the Boise airport refused to reveal the regulations allowing them to pat her down -- angering her so much she drove the more than 300 miles from Boise to Reno, Nevada.

"I was absolutely astounded at the fact that they thought they could violate my Fourth Amendment rights, violate my privacy, violate my body because of some secret law," she said.

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Exhibit B

June 16, 2005**Airport Device to Ease Need for Pat-Down****By ERIC LIPTON**

The number of airline passengers patted down at security checkpoints should drop significantly by the end of the year, after the nation's largest airports are equipped with new explosive detection devices, federal officials announced yesterday.

The walk-through devices - known as puffer machines - can detect trace amounts of explosives, allowing Transportation Security Administration screeners to find nonmetallic bombs without physically inspecting passengers.

The torso pat-downs endured by about 250,000 passengers a day across the nation became much more frequent last year after the bombing in Russia of two planes with explosives carried aboard by passengers.

The security administration has been testing the puffer machines at airports in 14 cities since last summer. Yesterday the agency announced it planned to install 162 machines by the end of the year in the nation's 40 busiest airports, which handle about 80 percent of the daily passenger traffic.

The total number of puffer machines - which cost about \$140,000 each - will be far fewer than the inventory of walk-through metal detectors, since only about 15 percent of passengers undergo more intense screening. In those cases, individuals will be asked to walk into the explosive detection device and stand still for a few seconds while several bursts of air are released. The portal automatically collects and analyzes the air for traces of explosives dislodged from the passenger's hair, skin or clothing. Each portal can handle about 180 passengers an hour.

Passengers who set off a walk-through metal detector will be required to be checked with a hand-held metal-detection device. But fewer passengers should have to submit to pat-downs once the puffer machines are in place, said Mark O. Hatfield Jr., an agency spokesman.

The puffer machines are being bought from Smiths Detection of Pine Brook, N.J., and General Electric of Wilmington, Mass. They are the first in a series of new devices that the agency intends to introduce in the next several years to improve security, Mr. Hatfield said.

Requirements for Visitors

WASHINGTON, June 15 (AP) - Visitors from friendly nations will not immediately be asked to show fingerprint or iris scan data when entering the United States, but they may have to in coming years under Bush administration plans announced Wednesday.

The United States requires that by Oct. 26 nations whose citizens enjoy visa-free travel rights to the United States issue passports with tamperproof digitized photos. But one year later, those nations' passports will have to include an integrated circuit chip capable of storing expanded biographical information.

Exhibit C

Airport body scanners useless: German police

(AFP) – Jul 30, 2011

34

BERLIN — Body scanners being tested at Germany's Hamburg airport have had a thumbs down from the police, who say they trigger an alarm unnecessarily in seven out of 10 cases, a newspaper said Saturday.

The weekly Welt am Sonntag, quoting a police report, said 35 percent of the 730,000 passengers checked by the scanners set off the alarm more than once despite being innocent.

The report said the machines were confused by several layers of clothing, boots, zip fasteners and even pleats, while in 10 percent of cases the passenger's posture set them off.

The police called for the scanners to be made less sensitive to movements and certain types of clothing and the software to be improved. They also said the US manufacturer L3 Communications should make them work faster.

In the wake of the 10-month trial which began on September 27 last year, German federal police see no interest in carrying out any more tests with the scanners until new more effective models become available, Welt am Sonntag said.

The European parliament backed on July 6 the deployment of body scanners at airports, but on condition that travellers have the right to refuse to walk through the controversial machines.

Worried about embarrassing intrusion into people's privacy, the parliament said the scanners should only produce images of "stick figures" and that any data must be immediately destroyed.

Concerned about the potential health risks, lawmakers also called for a ban on the use of X-ray scanners that use ionising radiation.


The use of scanners caused an uproar in the United States last year because they produce a graphic image of a person's body, giving rise to the name "naked scanner".

The United States stepped up the deployment of body scanners at airports after a Nigerian man was accused of trying to ignite explosives concealed in his underwear during a Christmas day flight from Amsterdam to Detroit in 2009.

Washington then urged the European Union to follow suit but Europeans decided to first study their impact on health and privacy.

Some EU states, including Britain, France, the Netherlands, Italy and Finland, as well as Germany, have tested body scanners.

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A woman is checked by a full body scanner at Hamburg's Fuhlsbuettel airport in 2010 (AFP/File, Fabian Bimmer)

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Exhibit D

Poll: Majority oppose body scans, nearly half seek alternative to flying

By

Tuesday, November 23, 2010 13:26 EDT

Topics: **body** ♦ **Pat** ♦ **percent**

The use of backscatter x-ray machines to scan travelers' bodies and new pat down procedures at airports will cause 48% of Americans to seek an alternative means of transportation, according to a Zogby International poll.

Of the 2,032 likely voters polled between November 19 and

November 22, 61 percent said they oppose the use of body scanners and pat downs.

The findings of the Zogby poll strikingly contradict an **earlier poll of 1,137 adults conducted by CBS News** November 7 to November 10. That poll found only 15 percent of respondents were opposed to the use of body scanners at airport security checkpoints, with four out of five saying they're in favor.

A **Washington Post-ABC News** poll of 514 adults conducted on November 21 found over half of respondents supported the use of body scanners and 70 percent supported the use of profiling at airports.

Another poll, conducted by **USA TODAY/Gallup** and published today, found that most travelers are bothered or angered by pat downs.

A growing number of people are concerned about invasions of privacy and possible health effects of new body scanners being used by the Transportation Security Agency (TSA).

"They say the risk is minimal, but statistically someone is going to get skin cancer from these x-rays," Dr. Michael Love, who runs an x-ray lab at Johns Hopkins University School of Medicine, said.

Those who choose to opt out of a body scan face an "enhanced" pat down procedure that has been described as nothing short of molestation.

Republicans and Independents are more opposed to the new body scans and pat downs than Democrats, with 69 percent of Republicans and 65 percent of Independents opposing them, compared to only 50 percent of Democrats.

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The poll also found that men were slightly more opposed than women, with 63 percent of men and 60 percent of women opposing the TSA's new checkpoint procedures.

In addition, 52 percent of respondents think the new security procedures will not prevent terrorist activity, 48 percent consider it a violation of privacy rights and 32 percent consider it to be sexual harassment.

"It is clear the majority of Americans are not happy with TSA and the enhanced security measures recently enacted," said pollster John Zogby. "The airlines should not be happy with 42 percent of frequent flyers seeking a different mode of transportation due to these enhancements."

The poll also found likely voters prefer body scans to TSA pat downs, 48 to 7 percent.

One traveler at Lindbergh Field was so fed up with the new procedures he stripped down to his underwear to avoid a pat down, **NBC San Diego** reported. He was arrested for refusing to put his clothes back on.

"TSA needs to see that I'm not carrying any weapons, explosives, or other prohibited substances, I refuse to have images of my naked body viewed by perfect strangers, and having been felt up for the first time by TSA the week prior, I was not willing to be molested again," he said in a statement released by his attorney Sunday.

Many who are upset about the new body scanners and intrusive airport pat down procedure have decided to hold an "**opt-out**" **protest on November 24** to show travelers how "the TSA treats law-abiding citizens" who refuse to be scanned.

The American Civil Liberties Union has received more than 600 complaints from passengers, a legislative counsel for the organization told the **Associated Press**.

"We all wish we lived in a world where security procedures at airports weren't necessary," John Pistole, the head of the TSA, said, "but that just isn't the case."

Exhibit E

October 4, 2013

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John Mica Attacks TSA 'Chat-Downs' As 'Idiotic,' Says Screening Failures Are 'Off The Charts'

First Posted: 10/24/11 04:25 PM ET Updated: 12/24/11 05:12 AM ET



WASHINGTON -- The chairman of the House committee that oversees the Transportation Security Administration blasted the agency's recent test of "chat-downs" of airline passengers, calling the pilot program "idiotic."

House Transportation and Infrastructure Committee Chairman John Mica (R-Fla.) told reporters during a briefing Monday that the [TSA's experiment](#) at Boston's Logan International Airport -- in which officers engaged passengers in brief conversations to help detect suspicious behavior -- is "a mess."

"This is no joke," said Mica, who has pummeled the TSA as a bloated bureaucracy with a mission he believes could be carried out more efficiently and cheaply by private companies under federal government supervision.

Mica laced into the pilot program, slated to be tested next in Detroit before rolling out to airports nationwide, as a pale imitation of the interrogations routinely conducted by Israeli security at Ben

Gurion International Airport in Tel Aviv. He noted that the [expanded behavior detection pilot](#) builds on an existing program that the [Government Accountability Office said](#) lacked scientific validity and has cost "a quarter billion" to hire thousands of screening officers.

During a recent visit to Logan to observe the pilot, Mica said he watched about a dozen officers quiz passengers in the terminal. "I put my ear up and listened to some idiotic questions," he said of the questions that delved into where travelers were coming from, why they'd been there and where they were going.

"I talked to them about their training, which was minimal," he said of his conversations with security personnel. He went on to say that even though passengers selected for further screening were supposed to go through [hi-tech scanners](#), on the day he visited the machines were out of service because there weren't enough trained personnel to run them.

"It's almost idiotic," Mica said. "It's still not a risk-based system. It's not a thinking system."

This [isn't the first time](#) Mica has denounced the agency he helped to create in the wake of the Sept. 11 terrorist attacks -- on Monday he even trashed the TSA's [blue uniforms and badges](#). But his latest harsh criticisms offered a preview of an upcoming committee report on the TSA's first decade.

The assessment will likely recount TSA's controversial record of using imaging technology that has raised the hackles of [privacy advocates](#) and has proven [less than effective](#) in spotting the dangerous materials they were designed to detect.

"The failure rate (for imaging equipment) is classified but it would absolutely knock your socks off," Mica told reporters. The number of times TSA [pat-downs](#) failed to detect contraband is also secret but, according to the chairman, is "off the charts."

Mica said the report, due out in the next couple of weeks, would be "sort of like the record of the Marx Brothers."

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Exhibit F

Airport body scanners useless: German police

(AFP) – Jul 30, 2011

34

BERLIN — Body scanners being tested at Germany's Hamburg airport have had a thumbs down from the police, who say they trigger an alarm unnecessarily in seven out of 10 cases, a newspaper said Saturday.

The weekly Welt am Sonntag, quoting a police report, said 35 percent of the 730,000 passengers checked by the scanners set off the alarm more than once despite being innocent.

The report said the machines were confused by several layers of clothing, boots, zip fasteners and even pleats, while in 10 percent of cases the passenger's posture set them off.

The police called for the scanners to be made less sensitive to movements and certain types of clothing and the software to be improved. They also said the US manufacturer L3 Communications should make them work faster.

In the wake of the 10-month trial which began on September 27 last year, German federal police see no interest in carrying out any more tests with the scanners until new more effective models become available, Welt am Sonntag said.

The European parliament backed on July 6 the deployment of body scanners at airports, but on condition that travellers have the right to refuse to walk through the controversial machines.

Worried about embarrassing intrusion into people's privacy, the parliament said the scanners should only produce images of "stick figures" and that any data must be immediately destroyed.

Concerned about the potential health risks, lawmakers also called for a ban on the use of X-ray scanners that use ionising radiation.


The use of scanners caused an uproar in the United States last year because they produce a graphic image of a person's body, giving rise to the name "naked scanner".

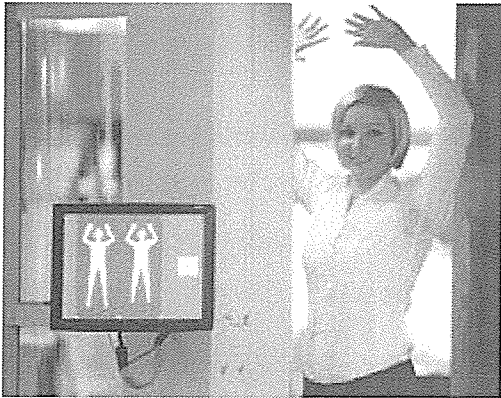
The United States stepped up the deployment of body scanners at airports after a Nigerian man was accused of trying to ignite explosives concealed in his underwear during a Christmas day flight from Amsterdam to Detroit in 2009.

Washington then urged the European Union to follow suit but Europeans decided to first study their impact on health and privacy.

Some EU states, including Britain, France, the Netherlands, Italy and Finland, as well as Germany, have tested body scanners.

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A woman is checked by a full body scanner at Hamburg's Fuhlsbuettel airport in 2010 (AFP/File, Fabian Bimmer)

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Exhibit G

Alaska Dispatch

News and voices from the Last Frontier

Published on *Alaska Dispatch* (<http://www.alaskadispatch.com>)

[Home](#) > High false alarm rate for TSA body scanners raises questions

Michael Grabell, Christian Salewski

December 24, 2011

Main Image:

[TSA body detector anomaly detected](#) [1]

While X-ray body scanners used in airports face concerns about [potentially increasing cancer cases](#) [2], a safer type of scanner has been plagued by another problem: a high rate of false alarms.

The scanner, known as the millimeter-wave machine, uses low-level electromagnetic waves that, unlike X-rays, have not been linked to cancer. The Transportation Security Administration already uses the millimeter-wave machine and says both types of scanners are highly effective at detecting explosives hidden under clothing.

But two of Europe's largest countries, France and Germany, have decided to forgo the millimeter-wave scanners because of false alarms triggered by folds in clothing, buttons and even sweat.

In Germany, the false positive rate was 54 percent, meaning that every other person who went through the scanner had to undergo at least a limited pat-down that found nothing. Jan Korte, a German parliament member who focuses on homeland security, called the millimeter-wave scanner "a defective product."

While it's difficult to know for sure if the millimeter-wave machine has a worse false-alarm rate than the X-ray machine, recent tests suggests that it does. The TSA wouldn't release its results, citing national security. But a British study found the X-ray machine had a false-alarm rate of just 5 percent.

For the millimeter-wave machines, a complicating factor is [new privacy software](#) [3] that was installed in many countries after a public outcry over the scanners' graphic images. The software automates detection and no longer creates an image of a passenger's body. While false alarms were reported before automation when human screeners interpreted images, the software appears to have made the problem worse.

The privacy safeguards are also an obstacle to lowering the false-alarm rate, researchers say. The machines do not save images or data, which could be used to teach the software how to distinguish real threats from false ones.

The problem of false alarms comes down to fundamental physics. Millimeter waves penetrate clothing and reflect off objects. But because of their frequency, millimeter waves also reflect off

water, which can cause the scanner to mistake sweat for a potentially dangerous object, said Doug McMakin [4], the lead researcher who developed the millimeter-wave scanner at the Pacific Northwest National Laboratory. (X-rays, which operate at a higher frequency, pass through water more easily.)

In addition, millimeter waves penetrate clothing materials differently, and layers of clothing can create a barrier, triggering a false alarm.

"These are known as clutter issues in the imaging," McMakin said.

The manufacturer, L-3 Communications, said that in the United States the scanners have not experienced a high rate of false alarms caused by either clothing or sweat. L-3 executives noted that the millimeter-wave machine is installed in airports in some of America's most humid cities, including Houston, New Orleans and Miami.

But as late as last November, the head of the TSA told Congress that false alarms were too frequent to deploy the privacy software. The TSA said the rate has improved since then and now meets its standards, which it would not disclose.

"As with many types of technology, there will be an anticipated amount of false alarms that are considered acceptable, and we continue to work with industry vendors to improve both the detection and operation capabilities for all of our technology," spokesman Greg Soule said.

But results from other countries, as well as tests conducted in the United States before 9/11, show false alarms occurred between about a quarter and half of the time. Moreover, dozens of U.S. travelers told ProPublica they had to get a pat-down despite passing through the body scanners.

Only one report of the false alarm rate for the X-ray body scanners could be found. At Manchester Airport in the United Kingdom, where 13 machines have been tested on more than 2.5 million people, the rate has been less than 5 percent -- and that includes passengers who left items such as keys in their pockets, said airport spokesman John Greenway.

Referring to the false alarm rate, Peter Kant of the manufacturer, Rapiscan Systems, said, "Our numbers internally are in the very low single digits." The company, as well as several physicists, said sweat does not cause false alarms with the X-ray scanners.

In an effort to close a gaping hole in its ability to catch explosives, the TSA in 2009 began installing body scanners alongside metal detectors for routine screening. The deployment ramped up quickly after a Nigerian man tried to blow up a plane that Christmas with explosives hidden in his underwear.

The TSA purchased both types of scanners [5] with plans to deploy them at nearly every security lane by 2014. In hubs, such as Atlanta and Dallas-Fort Worth, it installed millimeter-wave machines, which look like round glass booths and emit low-powered electromagnetic waves similar to those found in police radar guns.

In other major airports, such as Los Angeles and Chicago O'Hare, it installed X-ray machines, also known as backscatters, which look like two large blue boxes and emit extremely low levels of ionizing radiation, a form of energy that strips electrons from atoms and damages DNA,

potentially leading to cancer.

The possible health risk of the X-ray scanners, while small, has prompted several prominent radiation experts to ask why the TSA doesn't just use the millimeter-wave machine. The agency has said keeping both technologies in play encourages the contractors to improve their detection capabilities and lowers the cost for taxpayers.

The United States is almost alone in deploying the X-ray body scanners for airport security: Nigeria has installed them, and the United Kingdom is testing them for random screening and to check passengers who have set off the metal detector. Last month, the European Union prohibited the X-ray machines [6], effectively leaving the millimeter-wave scanner as the only option in Europe.

The United Kingdom will have to stop using the machines once its test is completed, according to the European Commission. But the commission has also asked one of its scientific committees for a health study that could change its position on the backscatters.

Guns, Sweat and Privacy Fears

During a Republican presidential debate in 1988 [7], George H.W. Bush, pulled out a .22-caliber miniature revolver made with only a small amount of metal to dramatize the new types of guns that could pass through airport metal detectors.

"That weapon at this point cannot be detected," he said. "That weapon can kill the pilot of an airplane."

The comments, along with concerns over a new Glock pistol made of plastic, spurred the Federal Aviation Administration, which was then in charge of security, to fund research into a millimeter-wave imaging system at the Pacific Northwest National Laboratory.

After 9/11, the lab licensed the technology to a startup company, which was acquired by L-3 in 2006.

When the scanners debuted, TSA officials boasted that they were so good at detection, that screeners could literally see the sweat on someone's back.

At that time, human operators viewed the image. Although sweat might appear similar to a threat, trained officers learned to recognize normal sweat patterns, said Kip Hawley, TSA administrator from 2005 to 2009. In fact, sweat could help officers detect a sheet explosive, he said, because something taped or glued to the body changes the natural sweat pattern.

"It never popped up where we said, 'Oh God, we're getting killed with false positives,'" Hawley said. "I think it's a training issue, training the officers on interpreting the images."

But because of the uproar over agents seeing passengers' bodies -- what critics decried as a "virtual strip search" -- other countries began installing automated detection software last year, and the TSA followed suit in July.

Now, instead of displaying an image of a particular passenger's body, the machine shows a

generic, unisex outline that's reminiscent of the cartoon character Gumby. Any potential threat is indicated by a yellow box that shows up roughly where the software detected it -- on the right ankle, for example, or the left elbow.

"It looks for abnormalities," said Tom Ripp, president of L-3's security and detection division. "It looks for objects that are not supposed to be there."

The advantage, L-3 officials said, is that screeners can focus their checks on the highlighted area instead of patting down a passenger's entire body.

"If you go out to an airport like D.C., Reagan, you'll see how easily the process works," said senior vice president Bill Frain. "Usually somebody left something in their pocket. We sat there and watched for 20 minutes. The duration between an alarm and a check -- they were just putting people through. It was a very quick check."

The European Experience

That wasn't the case in Germany.

The German interior ministry tested two L-3 body scanners with the automated detection software at Hamburg Airport, screening 809,000 airline passengers from September 2010 through July 2011. Despite the high rate of detection, the delays caused by frequent false alarms were so unbearable that Germany decided that the technology was not ready for everyday use.

Nearly seven out of 10 passengers had to be stopped for further screening. Although some passengers had forgotten coins or tissues in their pockets, 54 percent of all passengers who went through the scanners triggered true false alarms -- meaning that no hidden objects were found on those people, a ministry spokesperson said.

The vast majority of false alarms, affecting 39 percent of all passengers, were attributed to sweat, buttons or folds in clothing. Another 10 percent resulted from passengers moving during the scan, while 5 percent couldn't be explained at all.

Ripp from L-3 said the high alarm rate comes down to how diligent the screeners are about asking passengers to take off belts and boots, remove bulky sweaters and assume the proper stance with their hands over their heads. In the United States, the stance has become routine, he said.

"That was not the case in these trials in Hamburg," Ripp said.

The German interior ministry, however, dismissed the idea that it hadn't followed the manufacturer's protocol. Officials there provided ProPublica with a flier ^[8] that was handed out to passengers before the screening that specifically tells them how to stand and to remove sweaters, belts and boots.

"Prior to the field test, the security personnel was specially trained to deal with body scanners and has adhered to the control procedure," the spokesperson said via email. "The passengers were asked to take off the named items."

Germany wasn't the only country to have problems with false alarms.

France tested the scanners with and without the privacy software on more than 8,000 passengers flying out of Paris's Charles de Gaulle Airport to New York from February to May 2010. But the government decided not to deploy them because there were too many false alarms, said Eric Heraud, a spokesman for the French civil aviation authority.

Heraud wouldn't release specific figures but said the false alarm rate was higher with the automated detection than when officers interpreted the images. France plans to conduct a new test of the millimeter-wave scanners in 2012.

In Italy, the rate of false alarms was 23 percent, said Giuseppe Daniele Carrabba, head of the airports coordination department for the Italian civil aviation authority.

Italy tested two L-3 scanners with the automated detection software at the airports in Rome and Milan. The test ended in September, and officials are awaiting a final decision on whether to deploy the machines later this month. Carrabba said he thinks Italy will use them, and that the false positive rate will improve with more training and better preparation of the passengers for screening.

L-3 attributed the variations in experiences to the different settings that countries choose for what to detect and what to ignore.

Other countries that have deployed millimeter-wave scanners -- Canada with 51 machines and the Netherlands with 60 -- said they had not experienced problems with false alarms. They declined to disclose their false-positive rates.

The American Experience

In the United States, the TSA has deployed more than 250 millimeter-wave machines and plans to install 300 more by next spring.

The TSA declined to answer detailed questions. Instead, the agency released a statement saying that it had tested the automated detection software rigorously.

"Once it met the same high standards as the technology currently in use, TSA successfully tested the software in airports to determine whether it was a viable option for deployment," the statement said. "While there are no silver bullet technologies, advanced imaging technology with this new software is effective at detecting both metallic and non-metallic threats."

Shortly after the machines were developed, preliminary tests at Seattle-Tacoma International Airport in 1996 resulted in a false alarm rate of 31 percent, according to a research paper presented at a conference the following year. During the tests, screeners who were new to the machine viewed images of people carrying various weapons, explosives and innocuous objects and had up to 27 seconds to identify them. According to the paper, researchers did test the results with layered clothing.

In 2000, those same images were run through a primitive model of the automated detection and privacy software. The false alarm rate increased to 38.5 percent when the machine was set on

high sensitivity but decreased to 17 percent when set on low sensitivity, according to another study by the same researchers at the Pacific Northwest National Laboratory.

"Overall, these results show comparable performance" between the software and the human screeners, the researchers concluded.

The TSA ran additional tests over several years before deploying the scanners, but late last year, administrator John Pistole told Congress the tests were still showing a high rate of false alarms with the software. Officials said the false alarm rate improved, and the agency began installing the software over the summer.

Still, American travelers frequently complain about false positives similar to those experienced in Europe.

Lynne Goldstein, an archaeologist at Michigan State University, said she generally prefers the scanners because, with two knee replacements, she always sets off the metal detectors and has to undergo a pat-down.

But, she said, a cotton shirt she frequently wears while traveling set off the millimeter-wave machine several times while flying out of Detroit. TSA agents told her it was the shirt's "kangaroo pocket" similar to those found on sweatshirts that triggered the alarm.

"The last time, they did a full pat-down," Goldstein said. "The thing that's ironic to me: I actually like the machine."

Many travelers, however, also reported false alarms with the X-ray body scanner.

Jason Ritchie, an associate chemistry professor at the University of Mississippi, said he was flying out of Memphis on his way to a conference in August when the operator of the X-ray machine spotted something that required further checking.

The suspicious item: The pockets of his cargo pants, he was told.

"It kind of annoys me when I have to go through the X-ray system because I don't like to be irradiated unnecessarily," Ritchie said. "To have to go through that and then be told I also had to get a pat-down was frustrating."

ProPublica tried to get a handle on the false alarm rate in the United States by commissioning a poll by Harris Interactive. The poll of 2,198 people was conducted online to ensure that those who responded could view images of the machines in addition to reading a description.

Of the 581 people who said they had taken a flight in the past six months, nearly two-thirds, or 367, reported going through a body scanner.

About 11 percent of those scanned said they were patted down anyway despite having nothing on them -- the equivalent of a false alarm.

Among this group, the rate of false alarms was slightly higher for the millimeter-wave machine over the X-ray scanner. But Harris Interactive cautioned that because the sample size of people reporting this experience was small, the result cannot be generalized to the population at large.

Possible Solutions

Improving the technology to increase detection but limit false alarms is extremely challenging because of the great variety of body shapes and clothing, said McMakin of the Pacific Northwest National Laboratory.

The machine can be taught to recognize patterns in clothing such as a left breast pocket in men's dress shirts, he said. But whereas screeners could generally see the outline of an abnormal pocket or buttons in an image, the privacy software eliminates such human discretion.

One option is to combine the millimeter-wave scan with an optical camera to weed out those issues, McMakin said. For example, software could compare the millimeter-wave scan with the photograph to determine if a button or a zipper was causing the alarm. Developers could also increase or decrease the frequency of the waves or improve the shape and location information in the algorithm, he added.

"We're just at the beginning of where this technology can go," McMakin said.

Ripp from L-3 said it all comes down to "machine learning."

Getting the information of what's normal in order to improve the technology requires many thousands of scans. But because of the privacy outcry, the machines used in airports do not save the images or data from the scans. Without that real-world data, developers have to find other ways to teach the software to distinguish real threats from false ones.

Christian Salewski, a former fellow at ProPublica and a staff writer for the Financial Times Deutschland, reported from Hamburg.

This report [9] was originally published by ProPublica [10] and is republished here with permission.

Source URL: <http://www.alaskadispatch.com/article/high-false-alarm-rate-tsa-body-scanners-raises-questions>

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[3] <http://www.tsa.gov/approach/tech/ait/privacy.shtm>

[4] <http://www.youtube.com/watch?v=eXDPWTJQD0w>

[5] http://www.tsa.gov/approach/tech/ait/how_it_works.shtm

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[8] <http://www.propublica.org/documents/item/274754-germany-20100921-flyer-koerperscanner-dn4-klein>

[9] <http://www.propublica.org/article/sweating-bullets-body-scanners-can-see-perspiration-as-a-potential-weapon/#22900>

[10] <http://www.alaskadispatch.com/ProPublica.org>

Exhibit H

Imaging

For demonstration of image characteristics in x-ray backscatter systems, we simulated an abdomen by a cylindrical (45 cm-tall in a 50 cm field of view) uniform tissue elliptical phantom, 45 cm-wide and 25 cm-thick, the closest point of the front placed at a 26 cm distance from the plane of the detector. For imaging, detector dimensions were changed from the above evaluations: While the height and outside dimensions are limited by cabinet sizes, we assumed for imaging a smaller dead space between right and left detector, 18 cm rather than 58 cm. The effect of this change is to increase sensitivity *at the center* by factors of 3.4 and 3.6 at high and low kilovoltage, respectively. Detector performance continued to be assumed at 100% for all photons reaching its surface. The pixel size was 2.5 mm×2.5 mm, and the beam dimension 6 mm×6 mm. The display is for 5 mm×5 mm pixels, with the average of the four pixels forming it.

Four examples were simulated. No added material, added tissue, added TATP at density 1.2 and added PETN at density 2.0. These added materials were configured as a cone or “pancake” of 20 cm-diameter, 1 cm-height at the center, tapering to zero thickness at the border and conformal with the “abdomen”. The volume of this added material was approximately 160 cm³, making the weight of PETN approximately 320 g (note that the “shoe bomber” and “Christmas bomber” were reported to carry 40 g and 80 g of PETN, respectively, both considered sufficient to blow a hole in an aircraft fuselage.)

We compared these images to those of a tissue “brick” of the same volume (15 cm×10 cm, 1 cm-thickness, 150 g), the brick geometry being typically used for demonstrations of backscatter detection capabilities.

All tests included a water bottle of 3 cm-diameter and 5 cm-length, and an iron bar of 10 cm×1 cm and 1 mm-thickness. For all images, the entrance exposure is 10 nanoGy. Counts at this exposure are shown in Table 2. It is important to note that the 10 nanoGy exposure images shown here are a best case assumption. Detector efficiency is likely to be 50% of the value assumed, or even less at low kilovoltage, especially for multiple-scattered photons. The solid angle can be as much as 3.5 times lower, and is certainly less away from center, especially as departing center in the vertical direction, so the exposure could reach 70 nanoGy, close to 100 nGy

Table 2 Imaging results for 10 nGy entrance exposure.

Pixel size (mm × mm)	Counts	s.d. (%)
High kVp, 40,000,000 input x-rays		
2.5×2.5	170	7.7
5×5	680	3.8
10×10	2,720	1.9
Low kVp, 25,000,000 input x-rays		
2.5×2.5	44	15
5×5	176	7.5
10×10	704	3.8

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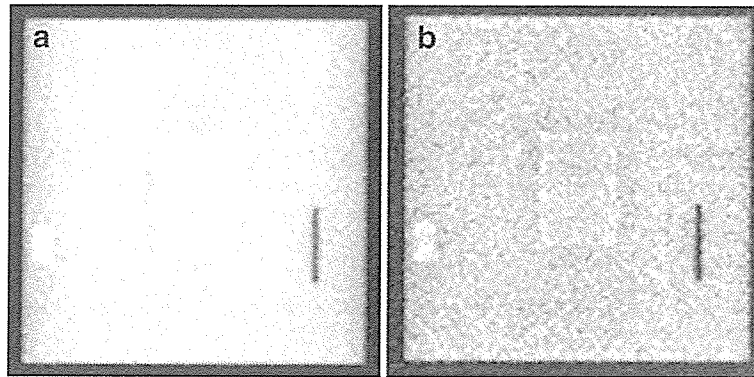


Figure 15 Simulated images at high (a) and low (b) kilovoltage for 10 nGy entrance exposure of a 150 g brick of tissue ($15 \times 10 \times 1$ cm). The center intensity is approximately 4.5% higher than background because of edge effects. Note that the brick is of the same composition as the underlying “abdomen”. If the brick were larger, its internal signal would be that of surrounding tissue

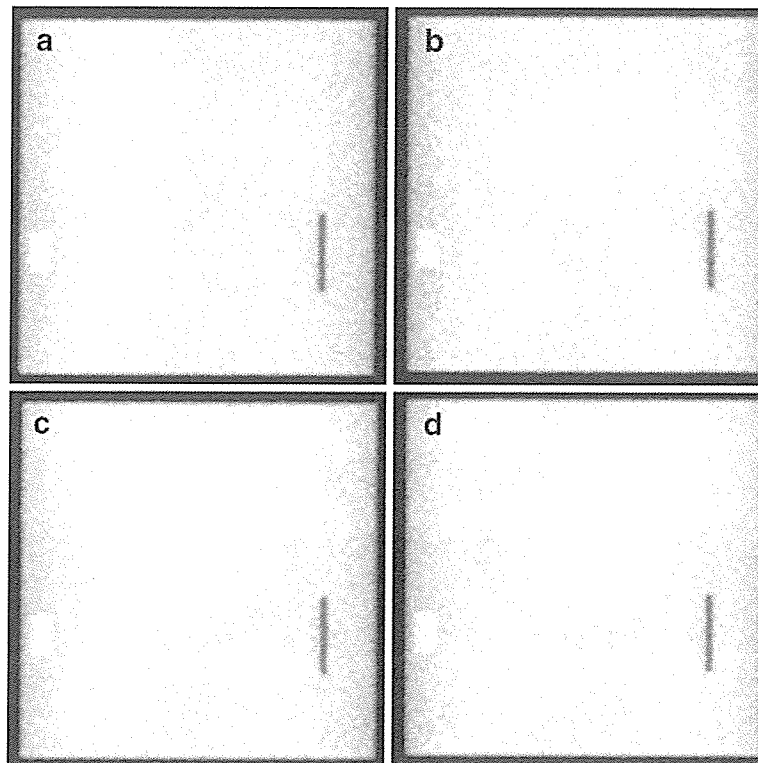


Figure 16 Simulated images at high kilovoltage for 10 nGy entrance exposure. data were acquired in 2.5 mm (200×200 matrix) pixels and are averaged and displayed with 5 mm pixels. **a** Tissue only; **b** Added 1 cm-thick, 20 cm-diameter pancake of 160 g of tissue; **c** Same as B, but with 190 g of TATP (density 1.2); **d** Same as B, but with 320 g of PETN (density 2.0)

An evaluation of airport x-ray backscatter units

A characteristic of backscatter imaging is a hard edge effect akin to a high pass filter with overshoot. Consider an x-ray beam scanning along a flat surface from, say, left to right. Most of the x-rays scattered into the detector come from deep into the subject, many not even from the beam position (Figures 8, 9, and 10), and they leave through the surface. For a uniform surface, neglecting solid angle changes, the scattered intensity is uniform. As the beam approaches a step that makes the material thicker, deep-scattered x-rays have more material to traverse if they scatter right rather than left. At the edge itself, half of the scattered x-rays have to traverse more material to exit, and there is a maximum drop in signal intensity. Consider now the beam scanning along the stepped material from right to left. Except for a small change in solid angle (proximity to detectors), the intensity is uniform and the same as for the beam in the far left. As the beam approaches the edge, some deep-scattered photons now can exit through less material, and the signal intensity increases, reaching a maximum at the edge. Thus, in a scan, there will be an undershoot at the edge on the lower surface, and an overshoot on the higher surface side. This effect will be unidirectional if the detectors are not symmetrical with respect to the edge location.

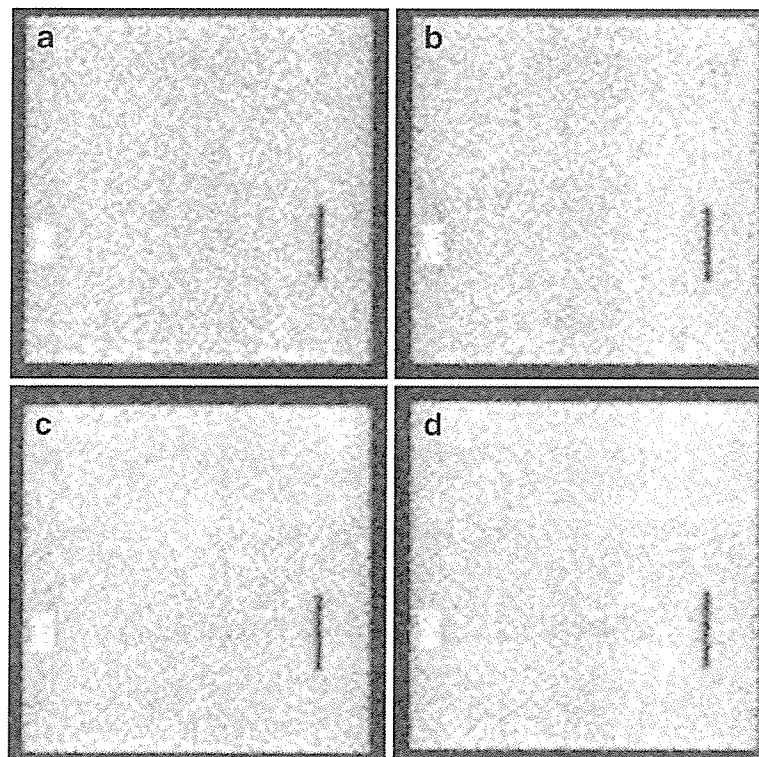


Figure 17 Simulated images at low kilovoltage for 10 nGy entrance exposure. data were acquired in 2.5 mm (200×200 matrix) pixels and are averaged and displayed with 5 mm pixels. **a** Tissue only; **b** Added 1 cm-thick, 20 cm-diameter pancake of 160 g of tissue; **c** Same as B, but with 190 g of TATP (density 1.2); **d** Same as B, but with 320 g of PETN (density 2.0)

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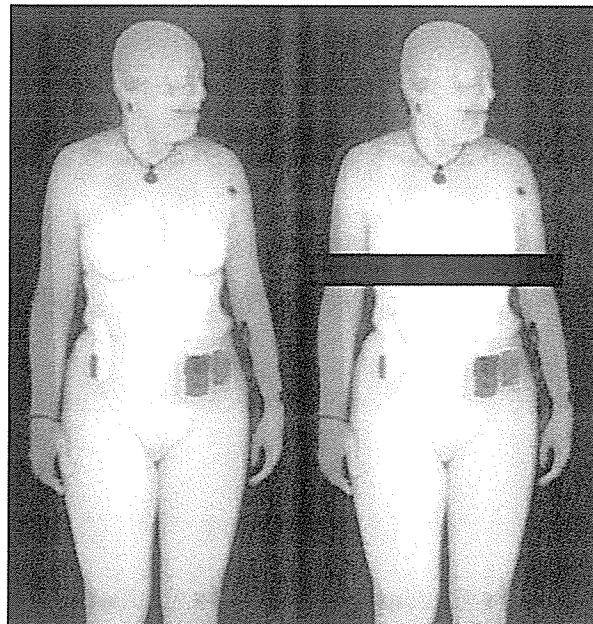
Figure 15 shows the tissue brick at high and low kilovoltages. The brick is clearly visible since it is almost all “edge”, given the beam spread shown in Figures 9 and 10, and more so at high than at low kilovoltage.

Figure 16 shows the abdominal phantom at high kilovoltage. Figure 16a is for the abdominal phantom with the bottle and iron alone. Figure 16b includes a pancake of tissue, which is not discernible. Figure 16c and d are for TATP and PETN respectively. The TATP shows as a faint increase in signal around its center, and the PETN also exhibits a faint dark ring at its periphery. Given the featureless background and knowledge of where to look, there are indications of the presence of these contraband materials. Figure 17 is for the low kilovoltage case. Again, knowing its presence, the TATP is faintly visible as a signal increase at the center, not that different of what can be an anatomic feature (see Figures 3, 4, 14 and 18).

Discussion

The publicly available information on backscatter airport scanners permits a reasonable evaluation of their performance. The results indicate that the radiation used penetrates throughout the body, a not surprising fact to those familiar with radiologic imaging at 50 and 125 kVp. Empirical support comes from noting that the routine diagnostic use of x-ray CT is practiced at 80 kVp to 120 kVp. Mammography, similarly needing enough x-rays leaving a breast of 10 cm or more thickness to make exquisite resolution and S/N images, is practiced at well below 50 kVp.

Figure 18 Demonstration of the importance of edge effects to detection. The breast blends into the shading of the image when the lower edge is covered. Separately, note that the heavy object on her left hip (a handgun) is only noticeable because her arm allows for a shadow of part of it. Arms raised, as they would have been in normal use, this object would be hard to notice



The penetration not only distributes exposure throughout the body (this affecting the calculation of effective dose, which comprises a sum over all organs), but tends to diffuse the effects caused by contraband materials. Images can be made at low entrance exposures, but of very poor spatial resolution and S/N. The calculated signal excursions at high kilovoltage are so small as to make it doubtful that at any reasonable exposure levels density differences will be noticeable unless the contraband is packed thickly and with hard edges. Although the excursions are larger at low kilovoltage, they are still small and in the noise of the device's operational limits. The eye is a good signal averager at certain spatial frequencies, but it is doubtful that an operator can be trained to detect these differences unless the material is hard-edged, not too large and regular-shaped. Anatomic features and benign objects add structured noise that interferes with signal averaging. Figure 18 shows a widely-distributed backscatter image. On the left is a complete view of her torso, on the right, a section has been blacked out. While the breasts are easily recognized at right, without some prior knowledge of the subject, it would be hard to distinguish the increase of intensity in the superior part of her breasts from the natural gradients of the image.

It is very likely that a large (15–20 cm in diameter), irregularly-shaped, cm-thick pancake with beveled edges, taped to the abdomen, would be invisible to this technology, ironically, because of its large volume, since it is easily confused with normal anatomy. Thus, a third of a kilo of PETN, easily picked up in a competent pat down, would be missed by backscatter “high technology”. Forty grams of PETN, a purportedly dangerous amount, would fit in a 1.25 mm-thick pancake of the dimensions simulated here and be virtually invisible. Packed in a compact mode, say, a 1 cm×4 cm×5 cm brick, it would be detected.

The images are very sensitive to the presence of large pieces of high Z material, e. g., iron, but unless the spatial resolution is good, thin wires will be missed because of partial volume effects. It is also easy to see that an object such as a wire or a box-cutter blade, taped to the side of the body, or even a small gun in the same location, will be invisible. While there are technical means to mildly increase the conspicuity of a thick object in air, they are ineffective for thin objects such as blades when they are aligned close to the beam direction.

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Exhibit I



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The scientific foundation and efficacy of the use of canines as chemical detectors for explosives

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Abstract

This article reviews the use of dogs as chemical detectors, and the scientific foundation and available information on the reliability of explosive detector dogs, including a comparison with analytical instrumental techniques. Compositions of common military and industrial explosives are described, including relative vapor pressures of common explosives and constituent odor signature chemicals. Examples of active volatile odor signature chemicals from parent explosive chemicals are discussed as well as the need for additional studies. The specific example of odor chemicals from the high explosive composition C-4 studied by solid phase microextraction indicates that the volatile odor chemicals 2-ethyl-1-hexanol and cyclohexanone are available in the headspace; whereas, the active chemical *cyclo*-1,3,5-trimethylene-2,4,6-trinitramine (RDX) is not. A detailed comparison between instrumental detection methods and detector dogs shows aspects for which instrumental methods have advantages, a comparable number of aspects for which detector dogs have advantages, as well as additional aspects where there are no clear advantages. Overall, detector dogs still represent the fastest, most versatile, reliable real-time explosive detection device available. Instrumental methods, while they continue to improve, generally suffer from a lack of efficient sampling systems, selectivity problems in the presence of interfering odor chemicals and limited mobility/tracking ability. © 2001 Elsevier Science B.V. All rights reserved.

Keywords: Explosive detector dogs; Explosive vapor detection; Solid phase microextraction

1. Introduction

The use of dogs as chemical detectors dates back to their use as hunting dogs 12 000 years ago based on tomb evidence. Since World War II, dog-handler teams have been used extensively by the military to locate explosives. The civilian use of dogs began with tracking individuals and locating drugs and bombs. Civilian use has expanded

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to include the detection of guns, pipeline leaks, gold ore, contraband food, melanomas, gypsy moth larvae, brown tree snakes and their use in the controversial dog-scent lineup for forensic evidence. In the last decade, dogs trained to detect flammable and ignitable liquid residues, commonly called accelerant detector dogs, have become widely utilized and their alert has proven to be admissible as evidence [1]. The use of detector dogs has now also become widespread and routine in search and rescue, including finding the last missing person after the World Trade Center bombing, discouraging employee drug use, termite infestation inspection, and screw worm detection [2–5]. A number of studies have been performed to study detection dog-handler teams. Unfortunately, the reports and articles are often not in refereed journals, but are in trade publications, books, manuals, and government reports. In some cases, errors have been perpetuated leading to additional confusion. This paper reviews much of the available information presenting a current evaluation of the state of knowledge of explosive detection dog-handler teams. Some of the reasons why relatively inexpensive and extremely effective bomb dogs have not been more widely employed has been debated in trade journals [6,7] and are evaluated scientifically in this paper. The scientific validity of the use of detector dogs is sometimes challenged by stating that inadequate scientific data are available to substantiate the reliability of their use. Indeed, only recently have researchers begun to determine the actual chemicals which dogs use to find forensic specimens, including explosives, as detailed later in this paper [8]. This paper demonstrates that there is sufficient scientifically valid data to demonstrate that dogs can be, and are, trained to reliably detect items.

2. Mechanism of detection by dogs

The scientific evidence that the sense of smell is the major sense used by dogs in detection tasks consists of studies demonstrating low thresholds for detection of odors [9–12], studies of the anatomy of the olfactory system of the dog [13],

and observations that dogs with measured or perceived problems with the sense of smell do not perform well in detection tasks [14,15]. Specific odorant binding proteins (for anisole and benzaldehyde) have been isolated and characterized in the dog [16]. A number of putative olfactory receptors from the dog have been cloned with subsequent characterization of some of the molecules [17]. Olfactory receptors have been hypothesized to be relatively loose binding to their respective ligands, and also to be rather nonspecific in that binding. However, there is hypothesized a preferential binding of similar ligands to the receptors, perhaps resulting in a unique encoding of receptor activation for thousands of odors [18].

In general, the sense of smell, as it relates to explosive detection, can be simplified as follows: (1) The odor(s) come into contact with the sensory apparatus most efficiently accomplished by the act of sniffing; (2) The odor chemicals, originating in vapor or possibly particulate form, are dissolved in the mucus layers within the nasal cavity, particularly overlying the olfactory mucosa, the epithelium within the nasal cavity containing the bulk of the olfactory receptors; (3) Interaction between the odor(s) and the appropriate receptors results in a second messenger cascade via a G-protein coupled reaction or an inositol 1,4,5-triphosphate (IP3) reaction; (4) The second messenger then sets up a receptor potential via opening sodium channels, eventually to the point of causing an action potential; (5) The action potentials travel to the brain via the neurons of the olfactory nerve to a variety of sub-cortical and cortical structures for further encoding and, eventually, perception; (6) The odors still present on the olfactory mucosa and elsewhere in the nasal cavity must then be purged, otherwise the stimuli would persist and the phenomenon of physiological adaptation would set in. This phenomenon is the lessening of the sensitivity of the system with continued stimulation; and (7) In addition to the olfactory system, the trigeminal nerve and the vomeronasal systems seem to be involved in the sense of smell, but their relative contributions are less well understood.

3. Standards and reliability of dogs as detectors

A field study demonstrating the efficiency of explosives detection by dog-handler teams was performed by Nolan and Gravitte [19] in which the teams were trained to detect landmines. During the summer sessions conducted in Arizona and Michigan, the dogs averaged over 80% correct location with several teams averaging over 90% correct location. Although few additional studies have critically examined the efficacy of detection teams, improved training, certification and maintenance protocols have been developed by various government agencies and private certifying organizations. To ensure scientific validity, important evaluation issues include identifying what items might cause false alerts and exposing these items in training and testing. Measurements should be conducted in a double-blind fashion with impartial evaluators and the results evaluated to determine reliability. Also, tests should include positive controls (known explosive scents free from potential contamination) and negative controls (no sample or potentially interfering or distracting samples). One specific example of the reliability of explosive detection canines repeatedly being substantiated is at the Department of Defense program, which has about 500 explosives detection canines worldwide and has a proficiency requirement of at least 95% detection rate for the targets (known explosive odor standards) used and 5% or less nonproductive rate (alerts to distracter odors) [20]. Another example of a well accepted certification program is that administered by the North American Police Work Dog Association which requires a minimum of 91.6% pass rate on target odors, including 6 different explosive odor classes and 4 of 5 different search areas [21]. While not peer-reviewed in the traditional sense, the guidelines published by such organizations generally undergo reviews and revision by panels of recognized experts before adoption.

These requirements generally meet or exceed the expected 90–95% confidence intervals used in forensic science for instrumental methods and legal conclusions requiring ‘beyond a reasonable doubt’ [22]. The criteria for accepting, certifying,

or otherwise approving a dog-handler team for use in the field are generally more than a simple percentage correct, however. Among behavioral factors evaluated are type and duration of search, alertness of the team, responsiveness of the dog to the handler, and, the handler’s skill in observing the behavior of the dog and interpreting those observations. These subtleties not present with instrumental methods make certifications more difficult. The debate over canine standards for bomb dogs was recently highlighted in the media when the U.S. Congress asked the Treasury Department to set standards for bomb-sniffing canines with the Bureau of Alcohol Tobacco and Firearms (ATF), suggesting the controversial standard of 100% accuracy on 60 tests [23].

Therefore, although there is limited data available, the published proficiency and certification standards of government agencies and national certification organizations indicates that K-9’s are tested to a level at least equivalent, if not superior, to instruments. Ultimately, relevant evidentiary statements can only be made in court by a qualified expert critically evaluating the detection team involved in a particular case. Proficiency or certification standards and practices for explosives detection instruments, such as the most common instruments based on ion mobility spectrometry (IMS), have also been subjected to limited peer review. One scientific study on the reliability of one of the most commonly used portable IMS instruments, the Ionscan (Barringer Instruments, Warren, NJ), showed 14 of 139 (10%) innocuous substances tested caused false positives when used for detecting controlled substances [24]. In another study evaluating the utility of the Ionscan for the detection of trace explosive evidence demonstrated the instrument registered a positive response on 12 of 17 (71%) post-blast fragments from improvised explosive devices [25].

4. Representative explosives and constituents

Table 1 is a representative, but not exhaustive, list of the typical mixtures of organic high explosives that include military explosives and industrial explosives. A variety of analytical techniques

Exhibit J

TSA Has Not Deployed Passenger Screening Canine Teams to the Highest-Risk Airports and Did Not Determine Their Effectiveness Prior to Deployment

TSA's 2012 Strategic Framework calls for the deployment of PSC teams based on risk; however, airport stakeholder concerns about the appropriateness of TSA's response resolution protocols for these teams have resulted in PSC teams not being deployed to the highest-risk airport terminals and concourses. Moreover, TSA began deploying PSC teams prior to determining the teams' operational effectiveness and before identifying where within the airport these teams could be most effectively utilized to screen passengers.

TSA Has Deployed PSC Teams to Airports; However, PSC Teams Have Not Been Deployed to the Highest-Risk Terminals and Concourses

In April 2011, TSA began deploying PSC teams to airports terminals and concourses, and plans to deploy all 120 PSC teams for which it has funding by the end of calendar year 2013.²⁴ TSA's Strategic Framework calls for the deployment of PSC teams based on risk; however, we found that PSC teams have not been deployed to the highest-risk airport terminals and concourses based on TSA's high-risk list. TSA officials stated that PSC teams were not deployed to the highest-risk terminals and concourses for various reasons, including concerns from an airport law enforcement association about TSA's decision to deploy PSC teams with civilian TSI handlers and the appropriateness of TSA's response resolution protocols. These protocols require the canine handler to be accompanied by two additional personnel that may, but not always, include a law enforcement officer. According to representatives from an airport law enforcement association, these protocols are not appropriate for a suicide bombing attempt requiring an immediate law enforcement response.

According to TSA officials, the lack of agreed-upon response resolution protocols with local law enforcement officials has complicated efforts to introduce PSCs at some airports. For example, seven airport operators have declined the deployment of PSC teams because of concerns

²⁴For the purposes of this report, "airport terminal" refers to the entire terminal complex and is inclusive of both the public and the sterile sides, whereas "concourse" refers to the sterile portion of the terminal where passenger gates are located. Details on how TSA developed its airport risk ranking and the rank of specific airports were deemed SSI by TSA.

Exhibit K

American Airlines Flight 444

From Wikipedia, the free encyclopedia

American Airlines Flight 444 was a Boeing 727 flying from Chicago to Washington, D.C., which on November 15, 1979 was attacked by the Unabomber. The bomb planted in the cargo hold failed to detonate, but gave off large quantities of smoke, and twelve passengers had to be treated afterwards for smoke inhalation. It was later determined that the bomb was powerful enough to have destroyed the aircraft had it worked correctly.

This was not the first Unabomber attack, but it was the attack which led to the FBI investigation into the Unabomber, as airliner bombing is a federal crime.

American still uses the flight number 444 despite the incident. The number may operate several different routings over time as American routinely reassigns flight numbers that are not flagship routes to different sectors; as of April 2013, flight number 444 is used on a Kansas City-Chicago O'Hare routing, and uses a Boeing 737-800 instead of a Boeing 727.

American Airlines Flight 444

Occurrence summary

Date	November 15, 1979
Summary	Bombing (attempted)
Passengers	72
Crew	6
Injuries (non-fatal)	12
Fatalities	0
Survivors	78 (all)
Aircraft type	Boeing 727-223
Operator	American Airlines
Flight origin	Chicago O'Hare International Airport
Destination	Washington National Airport

External links

- Non-hull loss description (<http://aviation-safety.net/database/record.php?id=19791115-1>) at the Aviation Safety Network

Retrieved from "http://en.wikipedia.org/w/index.php?title=American_Airlines_Flight_444&oldid=574879881"

Categories: Failed airliner bombings | Unabomber targets | Airliner accidents and incidents in Washington, D.C. | Airliner accidents and incidents in Illinois | Terrorist incidents in 1979 | Terrorist incidents in the United States | American Airlines accidents and incidents | Aviation accidents and incidents in 1979 | 1979 in Washington, D.C. | 1979 in Illinois | Airliner bombings in the United States

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Exhibit L

Domodedovo International Airport bombing

From Wikipedia, the free encyclopedia

The **2011 Domodedovo Airport bombing** was a suicide attack in the international arrival hall of Moscow's busiest airport, Domodedovo Airport, on 24 January 2011.

The bombing killed at least 37 people^[2] and injured 173, including 115 who required hospitalisation.^[4] 31 people died at the scene, another died in transit to hospital,^[5] and three more died in hospital the same day. Another victim, who had been comatose, died on 2 February, and another died on 24 February.^[2] Russia's Investigative Committee later identified the suicide bomber as a 20-year-old maleIngushetia native, who had been trained by Islamist terrorists affiliated with the Caucasus Emirate organization from the North Caucasus region.^[6] The group's leader Doku Umarov has taken personal responsibility for the terrorist act, through his web site Kavkaz Center.^[7]

◄ The template *Infobox civilian attack* is being considered for merging. ►

2011 Domodedovo Airport bombing



Domodedovo Airport's passenger terminal (2007)

Location	Domodedovo Airport Domodedovsky District,Moscow Oblast, Russia
Date	Monday, 24 January 2011 16:32 MSK ^[1] (UTC+03:00)
Target	Domodedovo Airport
Attack type	Suicide attack
Weapon(s)	Improvised explosive device
Deaths	37 ^[2]
Injured (non-fatal)	173
Perpetrators	Caucasus Emirate Riyad-us Saliheen Brigade ^[3]

Major terrorist attacks and suicide bombings in post-Soviet Russia [hide]

***Bold** indicates incidents resulting in over 50 deaths.
Incidents are bombings unless described otherwise.*

- Budyonnovsk hospital crisis
- Kizlyar-Pervomayskoye hostage crisis
- Vladikavkaz Apartment bombings
- Kaspiysk Moscow theater crisis Grozny
- Znamenskoye Tushino Stavropol Red Square
- Moscow Metro (1st) Grozny Dynamo stadiumMoscow Metro (2nd) Aircraft bombingsBeslan school crisis
- Moscow (Cherkizovsky Market)
- Vladikavkaz
- Nazran Nevsky Express
- Moscow Metro Kizlyar Vladikavkaz
- Domodedovo Airport

Part of the
First Chechen War
Invasion of Dagestan (1999)
Second Chechen War / North Caucasus insurgency

Contents [hide]

- 1 Background
- 2 Bombing
- 3 Victims

- 4 Aftermath
- 5 Responsibility
- 6 Response
- 7 Investigation
- 8 See also
- 9 References

Background [edit]

In 2010, Domodedovo Airport, located 42 kilometres (26 mi) southeast of central Moscow, was ranked as Russia's busiest airport, serving over 22 million domestic and international passengers. Concerns about security at the airport had been raised by an incident in 2004involving two passenger planes that departed from Domodedovo, in which two female terrorists succeeded in boarding the aircraft with bombs, and subsequently destroying the planes in flight. As a result, expensive improvements were made to the security measures at the airport, including the installation of full body scanners.

The city of Moscow had seen a number of significant terrorist incidents in the years prior to the 2011 bombing at Domodedovo. 2004 saw two separate major attacks on the Moscow Metro, one by a male suicide bomber on 6 February and another by a female suicide bomber on 31 August; in 2006, 13 people were killed in a market bombing; and in March 2010, at least 40 people were killed in suicide bombings on the Moscow Metro.

Bombing [edit]

The suicide bombing was carried out by 20-year-old Magomed Yevloyev, a native ofIngushetia. Yevloyev had arrived in Moscow a few days earlier, having traveled by bus fromNazran. While in Moscow, he was assisted by brothers Islam and Ilez Yandiev, who drove Yevloyev to the airport and watched him carry out the bombing in the terminal. Yevloyev managed to carry an explosive device under his coat unnoticed past a security checkpoint at the terminal entrance. He proceeded through the international arrival hall to the luggage claim area, where he detonated the bomb. Investigation indicated that the explosive device was packed with shrapnel and pieces of chopped wire, and had an explosive yield equivalent to 2–5 kg of TNT.^[8]^[9]

Victims [edit]

As the attack took place in the luggage claim area, most of the victims were incoming travellers. On 26 January, the Ministry of Emergency Situations reported the names of 35 casualties.^[10] Two additional victims died later from their injuries.

One of the casualties was 29-year-old Ukrainian playwright Anna Yablonskaya, the author of over a dozen plays. She had come to Moscow from her native city of Odessa to attend an award ceremony for young playwrights hosted by *Cinema Art* magazine.^[11]^[12]^[13]

Other foreigners among the casualties included one from Germany, one from the United Kingdom,^[14] two from Austria, two from Tajikistan, and one from Uzbekistan.

According to the Slovak embassy in Moscow, Slovak actress Zuzana Fialová was injured in the blast.^[15]

Dead and injured by country

Country	Dead ^[10]	Hospitalized ^[16]
 Russia	27+2	57
 Tajikistan	2	8
 Germany	1	1
 UK	1	
 Uzbekistan	1	1
 Austria	2	

Investigation [edit]

In the aftermath of the explosion, Russia's Investigative Committee stated that the bombing was aimed "first and foremost" at foreign citizens, adding that "it was by no means an accident that the act of terror was committed in the international arrivals hall".^[64]

On 7 February 2011, Russian officials identified the suspected suicide bomber as 20-year-old Magomed Yevloyev, born in the village of Ali-yurt, Ingushetia (not to be confused with the journalist of the same name killed in 2008).

Magomed Yevloyev's 16-year-old sister Fatima Yevloyeva and friend Umar Aushev were suspected of collaboration in the Domodedovo attack and detained in February 2011. They were released a few months later, but remained under investigation for illegal possession of firearms.^[65] In September, Yevloyeva and Aushev were no longer considered suspects, and were cleared of all charges.^[66]

In February and March 2011, Russian law enforcement agencies conducted special operations against members of the Caucasus Emirate in Ingushetia, during which they arrested several associates of Magomed Yevloyev, including Islam and Ilez Yandiyev.^{[67][68]}

By October 2011, four alleged associates of Yevloyev had been arrested: the Yandiyevs, Bashir Khamkhoyev, and Akhmed Yevloyev, Magomed's 15-year-old brother, who had allegedly helped assemble the bomb. They were charged with terrorism, formation of or participation in illegal armed bands, assault on a police officer, and illegal possession of firearms and explosives.^[69] Doku Umarov, who has claimed responsibility for masterminding the attack, has not been apprehended.

A year after the event, in January 2012, the Investigative Committee reported that the investigation was complete, and the final version of the indictment against Yevloyev, Khamkhoyev, and the Yandiyevs was to be brought by March 2012.^[70]

A separate investigation was conducted into the lax or inefficient security measures that were in place at the Domodedovo airport at the time of the attack.

It was reported that Doku Umarov had planned to follow the Domodedovo attack with two additional bombings in Moscow. An attack in Moscow's Red Square was planned for New Year's Eve, 2011, but it was foiled when the suicide bomber accidentally triggered the bomb in a hotel room in Kuzminki District, killing herself in the explosion.^[71] Another bombing was to be carried out by a Slavic Russian couple who had converted to Islam, and become members of Caucasus Emirate. However, they were unable to leave Dagestan, and instead committed two separate suicide bombings in the village of Gubden on 14 February 2011, killing two policemen and injuring 27 people.

See also [edit]

- 21st century attacks in Russia
- Suicide attacks in the North Caucasus conflict

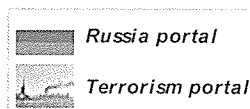


Exhibit M

Bayes Rule and the Base Rate Fallacy

(2)

- TSA's behavior detection program flags individuals for more in-depth questioning and screening
 - In the airports where it is used, fifty thousand travelers have been flagged. Zero of these were terrorists.
 - Sixteen known terrorists passed through behavior detection airports on at least 24 occasions. Zero of the terrorist travelers were flagged.
- But what if, instead, we had a spectacularly effective test? Let's assume our test **always flags terrorists** and, further, gives a **false positive on one in ten thousand (0.00001) innocent travelers**.

Presented by Professor Paul H. Garfield, <http://libarts.org>

Bayes Rule and the Base Rate Fallacy

(3)

- The base rate fallacy results from failure to account for the incidence of the condition being tested for.
 - Probability passenger is terrorist: 21 out of 10 billion, or 0.000000000002
 - Bayes rule: $P(\text{terrorist}|\text{flag}) = P(\text{flag}|\text{terrorist}) * P(\text{terrorist}) / P(\text{flag})$
 - $P(\text{terrorist}|\text{flag}) = 1 \cdot 0.00000000000002 / 0.0000100000002 = 0.00000002$
 - So, with a nearly perfect test, only one out of every five million flagged "high risk" travelers is a terrorist.
 - False positives are not free – they undermine security

Presented by Professor Paul H. Garfield, <http://libarts.org>



Freedom To Travel USA



MAY 22, 2012

BACKGROUND BRIEFING

Transportation Security Administration (TSA)
Documented Abuses, Legal Issues, Security Issues,
and Health Risks

Sommer Gentry, Ph.D.

(1)

- Operations research is the discipline of applying advanced analytical techniques to help make better decisions.
- Our role as operations researchers is to allocate resources to maximize the desired outcomes, to quantitatively analyze responses to risk, to calculate responses to strategic behavior, to capture all the intended and unintended consequences of various courses of action.

Presented by Professor Paul H. Garfield, <http://libarts.org>

National Research Council, Review of DHS' Approach to Risk Analysis

- With the exception of risk analysis for natural disaster preparedness, the committee did not find any DHS risk analysis capabilities and methods that are yet adequate for supporting DHS decision making. Moreover, it is not yet clear that DHS is on a trajectory for development of methods and capability that is sufficient to ensure reliable risk analyses other than for natural disasters. (2_3, 80)
- Little effective attention was paid to the features of the risk problem that are fundamental. (11)

Prepared by: transdot@hhs.gov | <http://hhs.gov>

VIPR operations suffer a worse fate

- In the VIPR program, TSA partners with local law enforcement and/or transit agencies to search bags, question transit passengers, or stop truck drivers where there is no specific threat.
- Thus, VIPR operations affect perhaps a few hundred thousand out of untold trillions of commutes every year in the U.S., without even targeting these actions toward threats.
- This is like saying, "if we throw a bunch of anvils in the air, will they come down and hit terrorists?"

Prepared by: transdot@hhs.gov | <http://hhs.gov>

National Research Council, Review of DHS' Approach to Risk Analysis

- Assessment of individual components of risk and their integration into a measure of risk is seriously deficient and is in need of major revision. (11)
- Until these deficiencies are improved, only low confidence should be placed in most of the risk analyses conducted by DHS. (11, 98)
- Most DHS risk models and analyses are quite complex and poorly documented, and thus are not transparent. Moreover, some of these models imply false precision. (7)

Prepared by: transdot@hhs.gov | <http://hhs.gov>

How to solve the base rate fallacy

- Apply counter-terrorism measures to high-risk populations, which means use police forces and intelligence techniques to target plots at early stages.
- All successes of counter-terrorism are of this type: liquids plot in Britain, the recently recovered underwear bomb, Times square bomber, et cetera.
- Analogously, test people for HIV if their behaviors indicate some reasonable likelihood they have been exposed.

Prepared by: transdot@hhs.gov | <http://hhs.gov>

Probability neglect is rampant at DHS

(10)

- Emphasizing worst-case scenarios, assuming they are certain rather than assessing their likelihood
- Adding, rather than multiplying probabilities
 - DHS devised a rating scale where probabilities are added to losses. Losses on 80-point scale + likelihood of attack on 20-point scale.
 - This procedure violates all accepted risk assessment principles. Risk is attack probability multiplied by losses: de Moivre (1711).
- Inflating the definition of critical infrastructure
 - DHS OIG: criticality is not immediately apparent in groundhog zoo, Mule Day Parade, a flea market, mini golf courses, Weeki Watchi.
- Inflating terrorist capacities

Prepared by: Brandon To Travel USA http://amstow

Mueller and Stewart: Risk never quantified

(11)

- Researchers found *one* reference to a numerical estimate of risk reduction after an extensive search of the agency's reports and documents.
- Moreover, they found no reference whatever to the likelihood of a terrorist attack beyond rather vague references such as "high", "imminent", "dynamic", "persistent", and "emerging".
- What is needed are numbers, not adjectives – particularly ones that, without explanation, cluster at the dire end of the threat spectrum.

Prepared by: Brandon To Travel USA http://amstow

National Research Council, Review of DHS' Approach to Risk Analysis

(8)

- With one exception, the committee was not told about or shown any document explaining the mathematics of the risk modeling or any write-up [explaining] how risk analyses are conducted. (42)
- It appears that the choice of weightings in these risk assessments, and the parameters in the consequence formulas, are chosen in an ad hoc fashion. (72)
- DHS has a very thin base of expertise in risk analysis – many staff members are learning on the job. (90)

Prepared by: Brandon To Travel USA http://amstow

National Research Council, Review of DHS' Approach to Risk Analysis

(9)

- It is very difficult to know precisely how DHS risk analyses are being done and whether their results are reliable and useful. (11)
- DHS has frequently chosen to weight heavily its consequence analyses, where magnitudes of effects can be estimated, and to reduce the weight attached to threats, where the uncertainties are large. This is not an acceptable way of dealing with uncertainty. (97)
- There are people at DHS who are aware of these limitations, but the committee did not hear of efforts to remedy them. (65)

Prepared by: Brandon To Travel USA http://amstow

Risk estimates "chosen in an ad hoc fashion"

(14)

- Tenet, 2007: His "operational intuition" was telling him al Qaeda "infiltrated a second wave or a third wave into the United States at the time of 9/11. Can I prove it to you? No."
- Michael Chertoff, 2007, said his gut was telling him there would be an attack that summer.
- Richard Clarke, 2005, issued a scenario involving shootings at casinos, campgrounds, theme parks, and malls in 2005, bombings of subways and railroads in 2006, and missile attacks on airliners in 2007.

Prepared by: Casey.C.Hartley@fbi.gov / <http://fbi.gov>

Distorted priorities

(15)

- Fmr. Homeland Security Secretary Chertoff: "I've never heard anyone say that the Department is overfunded. Well, actually, some people do say that, but no one in the Department has ever said that."
 - Brookings Institution, 2006, televised by CSPAN
- In fact, by 2008, U.S. was spending more on counterterrorism (excluding military) than on combating all other forms of crime and fraud.
 - DC Metro, for example
- One trillion dollars later, DHS refuses to quantify how much safer these expenditures have made us

Prepared by: Casey.C.Hartley@fbi.gov / <http://fbi.gov>

Direst predictions have been overblown

(12)

- Tom Ridge, 2003: "extremists abroad are anticipating near-term attacks that they believe will either rival, or exceed" those of 2001.
- John Ashcroft, 2004: "credible intelligence from multiple sources indicates that al Qaeda plans to attempt an attack on the U.S. in the next few months" and arrangements are 90% complete.
- Flynn, 2004, declared al-Qaeda had the ability and intent to detonate a weapon of mass destruction, killing hundreds of thousands, collapsing our economy, and delivering a "fatal blow to our way of life."

Prepared by: Casey.C.Hartley@fbi.gov / <http://fbi.gov>

Direst predictions have been overblown

(13)

- Robert Mueller, 2003: al Qaeda has "developed a support infrastructure" in U.S., and has both "the ability" and "intent" to inflict "significant casualties in the U.S. with little warning." Estimates there are 5000 al Qaeda operatives in U.S., active in most sizable cities with Muslim communities.
- Robert Mueller, 2005, responding to the fact that FBI had not unearthed a single al Qaeda cell in the U.S., said, "I remain very concerned about what we are not seeing."

Prepared by: Casey.C.Hartley@fbi.gov / <http://fbi.gov>

Example: New Orleans levee improvements

18

$$\text{Net Benefit} = \underbrace{p_{\text{attack}} \times C_{\text{loss}} \times \Delta R}_{\text{benefit}} - \underbrace{C_{\text{security}}}_{\text{cost}}$$

- $p_{\text{breach}} = 0.5$
- $C_{\text{breach}} = \$60 \text{ billion}$
- $\Delta R = 0.95$
- $C_{\text{security(levees)}} = \27 billion
- Net Benefit = $\$1.5 \text{ billion} = 0.5 \times \$60 \text{ b} \times 0.95 - \27 b

Cost-effectiveness of body scanners

19

- For Advanced Imaging Technology (body scanners) to be cost effective with 90% likelihood, assuming body scanners are 5 times more effective than any other airport screening measure, the probability of an attack downing four major aircraft must be in the range of 160% to 330% per year.
- Body scanners are cost-effective if we think 9/11-sized attacks are likely to happen about 2 or 3 times every year.

Homeland Security: Risks and Costs

16

- Terror, Security, and Money by Mueller and Stewart
- How can we justify even talking about money when there are human lives at stake?
 - Every safety action has alternatives. Could the same dollars have saved even more lives? Seatbelts: \$40,000 per life saved, bike helmets cost \$120,000 per life saved, smoke alarms cost \$2 million per life saved
 - DHS > \$550 million per life saved, assuming effective.
- It is profoundly irresponsible, even immoral, to spend public safety funds without questioning whether they are being directed to the most beneficial uses.

Security measures with no benefit

17

$$\text{Net Benefit} = \underbrace{p_{\text{attack}} \times C_{\text{loss}} \times \Delta R}_{\text{benefit}} - \underbrace{C_{\text{security}}}_{\text{cost}}$$

- Security measures should have positive net benefit
- All these numbers are uncertain, except C_{security}
- Estimate C_{loss} and ΔR , giving benefit of the doubt to proponents of TSA security procedures
- Calculate how high the probability of attack would have to be for airport screening to be beneficial (break-even)

Game theory: where is the weakest link?

22

- A hypothetical enemy is free to choose the attack with highest likelihood of success, so the best investments strengthen the weakest defenses
 - Carry items through a body scanner as a passenger
 - Carry items through a metal detector as a passenger
 - Bribe TSA screeners to bypass screening
 - Get a job as a tarmac worker or airport retail worker
 - Bribe a tarmac worker or airport retail worker
 - Breach airport fence
 - Attack aircraft with shoulder-fired missile from nearby
 - Attack malls, schools, unsecured areas of airports

Cost-effectiveness of other air security measures

20

- Hardening cockpit doors is cost-effective if the probability of an attack involving \$200 billion worth of damage is 0.0012, that is, if we expect a 9/11-sized attack at least once in every 800 years
- The federal air marshal service is cost-effective if the probability of a successful attack causing \$200 billion in damage is 35% per year, that is, if we expect 9/11-sized attacks about once every 3 years.

Case: 12-15893

Date Filed: 10/07/2013

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Cost-effectiveness of U.S. counterterrorism

21

- Assuming the combination of all counterterrorism programs have reduced risk by 95%, these programs are cost-effective if we expect an average of one or two 9/11-type attacks every year, or 33 major subway bombings per year, or 1,667 Times Square bombings every year.

No good deed goes unpunished

23

- Misguided and overly intrusive security measures are not merely wasteful. Intrusive and bothersome security kills.
- For every million travelers who drive instead of fly to their destinations, 15 will be killed in car accidents.
- In 2006, about 6% of would-be airline passengers were diverted by the inconvenience of screening, resulting in an estimated 516 unnecessary deaths on the road.
- In 2011, those numbers are likely higher because screening has become more intrusive and more controversial
 - With 700 million airline passengers per year, if even 1% of people who would prefer to fly choose to drive, 105 deaths will result.

Air travel is incredibly safe!

(26)

Fatalities per billion passenger miles

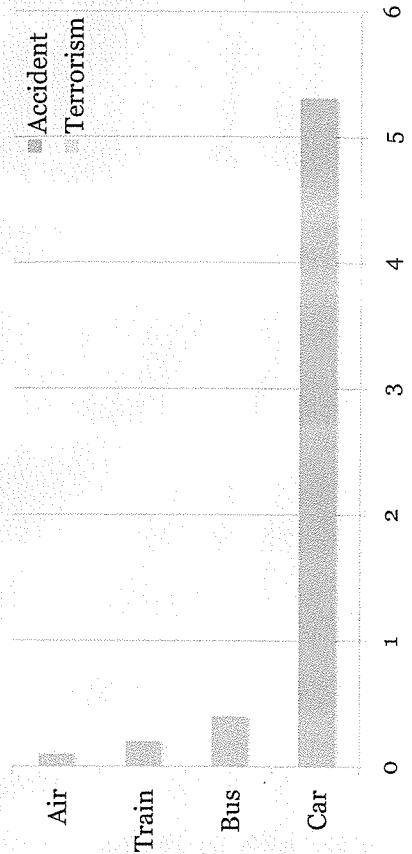


Source: Bureau of Transportation Statistics, Bureau of Census, Bureau of Economic Analysis

Airplane deaths are overwhelmingly accidental

(27)

Fatalities per billion passenger miles

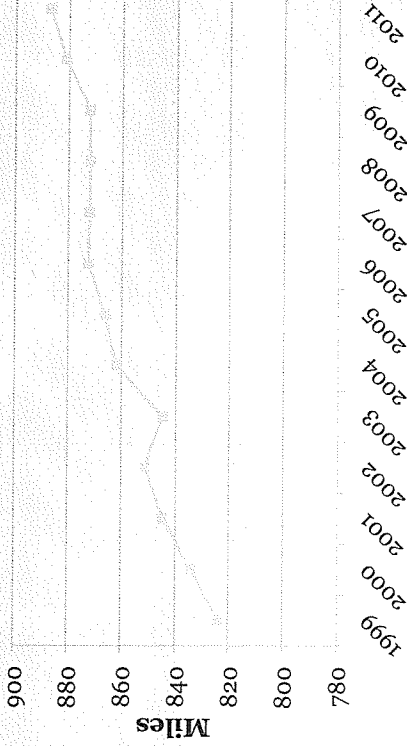


Source: Bureau of Transportation Statistics, Bureau of Census, Bureau of Economic Analysis

Short-haul flying down; trip length up

(24)

Passenger trip length (BTS)



Source: Bureau of Transportation Statistics, Bureau of Economic Analysis

The FAA understands this. Why not TSA?

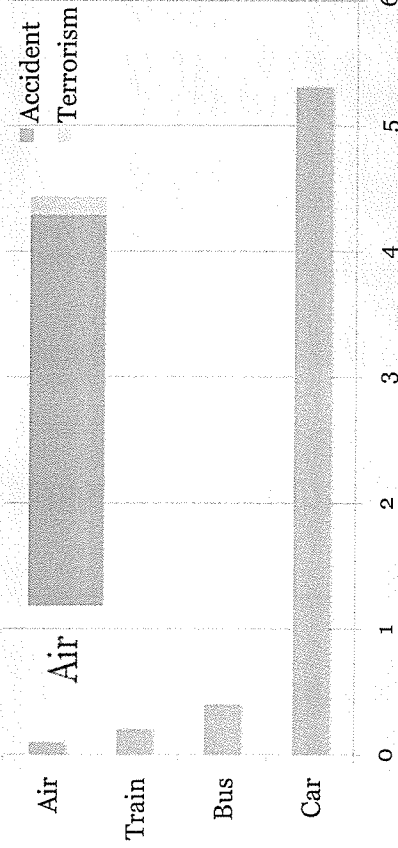
(25)

- The FAA faced a very similar dilemma in rulemaking for lap children under 2. Children under 2 are safer belted in their own child seats on airplanes, but forcing parents to buy an extra airplane ticket would be costly enough to divert many families to the road.
- It was estimated that eliminating the lap child policy would cause nine child fatalities from road accidents for every one child fatality prevented in air accidents.
- The FAA took a rational approach to safety. In contrast, the TSA has refused to quantify how many would-be flyers are diverted to roads by its policies.

Airplane deaths are overwhelmingly accidental

28

Fatalities per billion passenger miles



Annual Fatality Risks: acceptable risks?

29

All accidents	1 in 2,500
Homicide	1 in 22,000
Food poisoning	1 in 100,000
Drowning in bathtub	1 in 950,000
Home appliances	1 in 1,500,000
Deer accidents	1 in 2,000,000
Terrorism (U.S.)	1 in 3,500,000

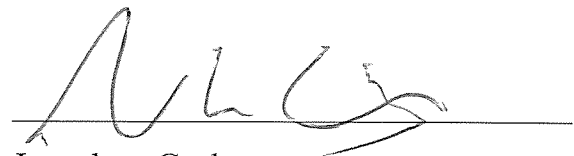
5. Based on my experience, The TSA's full body pat down procedure is as follows: 1) The traveler is directed to stand with feet approximately 12" apart and hands out to the sides with upturned palms. 2) If the traveler is wearing any headwear, or has hair in which an item may be concealed, the head is patted down. 3) The collar of the shirt of the traveler is inspected by placing the screener's fingers inside the collar and running them along the entirety of the collar. 4) The screener will use both hands to sweep from shoulder down to the end of the traveler's sleeve, on each arm. 5) The screener will slide his or her hands from shoulders down to waist along the back of the traveler's body several times, moving from one side of the body to the other. 6) The screener will inspect the waistband by putting his fingers inside the pants of the traveler and running them along the back half of the traveler's waistband. 7) The screener will run his or her hand down the buttocks of the traveler several times, moving from one side of the body to the other. This is the only portion of the search conducted with back of the hands rather than fingertips. 8) The screener will place both of his or her hands on either side of the foot of the traveler and slide them upwards until the inner hand bumps into the genitals of the traveler. This is repeated for the other leg. 9) The screener will either direct the traveler to turn around or will move his or herself to the other side of the traveler. 10) The traveler is instructed to place his or her arms

down. 11) The screener will repeat step 5 on the front half of the body, running his or her hands over the chest of the traveler. 12) The screener will repeat step 6 on the front half of the traveler's pants, brushing the traveler's pubic area with his or her fingers. 13) The screener will repeat step 8 on the front half of the body, bumping into the traveler's genitals for a third and fourth time.

6. Based on my understanding of physics from studying computer science at Rensselaer Polytechnic Institute, magnetic fields cannot be blocked by merely placing an object between the source of the field and a destination.

Dated: Miami, Florida
October 4th, 2013

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Jonathan Corbett', written over a horizontal line.

Jonathan Corbett

Petitioner, Pro Se

382 N.E. 191st St., #86952

Miami, FL 33179